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Issue 156
March 2016

The magazine for producers, engineers and recording musicians

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MusicTech

Expert Panel



Studio Hardware John Pickford

A studio engineer for over 25 years, John's a keen sound recording historian who has a passion for valve-driven analogue equipment and classic recording techniques.



Mixing/Mastering/Logic Mark Cousins

Mark specialises in sound design and cinematic productions. He's recorded with orchestras across Europe and is heavily involved in soundtrack composition.



Careers Editor Rob Boffard

A sound designer with a background in TV and radio work, Mark's a Reason evangelist and – when he isn't writing for *MusicTech* – releases hip-hop music under the name Rob One.



Digital/Composition Andy Price

With a Masters in songwriting and a vast interest in music history and recording techniques, Andy works daily on *MusicTech*. net and regularly contributing to the magazine. He's currently heading up our *Landmark Album* features and songwriting/Cubase series.



Recording & Guitar Tech Huw Price

A recording engineer since 1987, Huw has worked with the likes of David Bowie, My Bloody Valentine, Primal Scream, Depeche Mode, Nick Cave, Heidi Berry and Fad Gadget.



Scoring/Orchestral Keith Gemmell

Keith specialises in areas where traditional music-making meets music technology, including orchestral and jazz sample libraries, acoustic virtual instruments and notation software.



Ableton Live Martin Delaney

Martin was one of the first UK Ableton-Certified Trainers. He's taught everyone from musicians to psychiatric patients and written three books about Live. Martin also designed the Kenton Killamix Mini USB MIDI controller and is now the editor of www.ableton-live-expert.com.



Synthesizers/Modular Dave Gale

Dave is an Award-Winning Media Composer, Orchestrator and Producer, with a passion for synths and modulators in all their forms, whether software, hardware, vintage or contemporary.



Electronic Music Alex Holmes

Alex has been a computer musician for 15 years, having a keen passion for beats, bass and all forms of electronic music. He's currently involved in three different dance music projects.



Pro Tools Mike Hillier

Mike spent five years at Metropolis Studios, working alongside some of the best-known mix and mastering engineers in the world. He now works out of his own studio in London.

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The NAMM Show in California defines the gear we'll be talking about in *MusicTech* for the coming year. I was there and have rounded up the best news from the show on p6 in an *MT* Studio Special. There's

also a list of six very cool announcements from the show that you may have missed, one of which – Orchestral Tools' mighty Metropolis Ark 1 – we review exclusively on p58. But the main message of the show was that hardware synths are back... again! And by coincidence – actually design (yes, really) – we have a massive feature dedicated to that whole Eurorack phenomenon right here...

Synth expert David Gale explains the whole modular concept from p20 with DIY guides, and reveals some of the best modules you can buy. He also tests the latest AJH Synth modular system on p79 and I try to get in on the action with Roland's Boutique synths on p62. OK, they're not modular but they do show that we have come full circle in terms of people wanting hands-on hardware synthesis. I doubt, though, whether people will turn away completely from software, and with libraries such as Metropolis I'm sure the best studios will incorporate the best of both hard and soft studio tools. All of which nods nicely to our new Back To The Future feature on p18, where we essentially offer both routes to recreate the sound of a classic piece of studio gear. It's an exciting, topsy-turvy, retro-futuristic world we inhabit in our studios. Whatever next? Digital synths? Oh, hello Yamaha Montage (p16)...

Andy Jones Senior Editor

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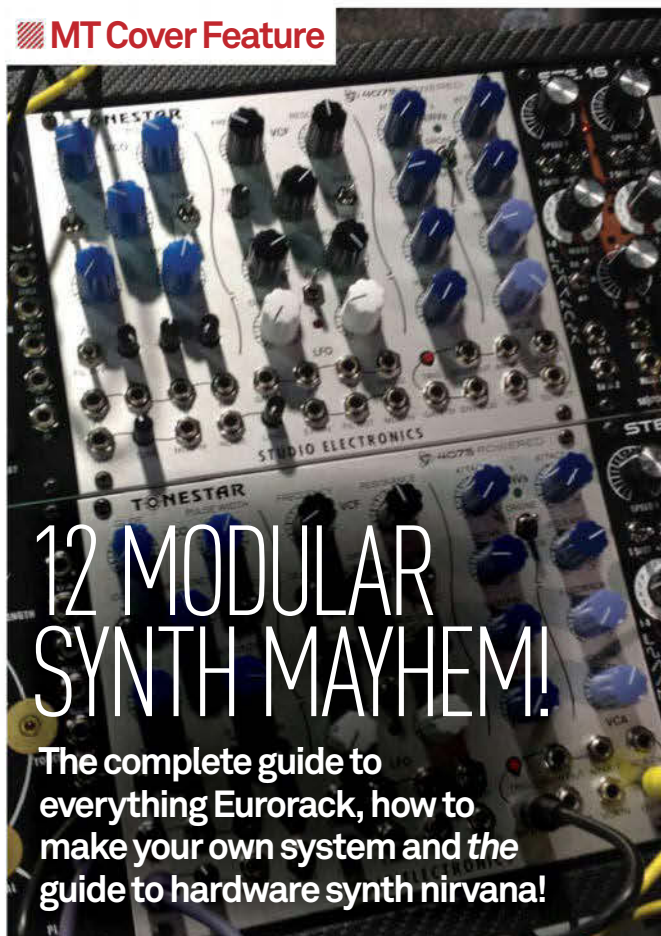
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NAMM 2016 SPECIAL

The NAMM Show recently kicked off in Anaheim, California, complete with all of the big studio gear announcements for the coming year. There were surprises, updates, oddities and more hardware synth modules than ever. *MusicTech* editor **Andy Jones** was there to bring you all the latest news, releases and gossip...

DAY 1 PREVIEW DAY, ROLAND, AWARDS AND RUMOURS

NAMM 2016 kicks off a day early with a preview event to make the press feel special and a completely new version of Roland...

The NAMM Show started a day early this year. For the 20-something years I've been attending the show, it has always started on a Thursday, but just as Christmas (in the UK anyway) seems to start earlier every year, so the NAMM Show now starts on a Wednesday... or at least it did this year.

And no one was more surprised than me, especially after luckily getting out to LA a few days early for what I thought would be a few relaxing days by the pool. As I arrived, trunks in hand, I was greeted by pouring rain and the prospect of a two-hour Roland press conference to attend. To say that the smug smile was quickly erased from my face would be a massive understatement...

So while the preview day of NAMM was not officially a NAMM day, we did have that **Roland press conference** and another special event – where members of the press were invited to check out some of the new show gear – to tell you about, and this bonus day looks like becoming a standard feature of NAMM going forward.

First up, the all-new **Press Preview Event**, and there were several varied companies here, including *MT* favourite ROLI with its groundbreaking Seaboard keyboards, a set of controller keyboards that utilise what the company calls 'the

five dimensions of touch' to play sounds more expressively. Also on show was the new **49-key** (or Key Wave) **RISE**, which is a bigger version of the 25-note one I reviewed a few months back. I won't lie – I bloody loved that, and this being just a bigger version meant that I assumed I would love it too. Sure enough, after settling down with it for what I thought would be a short demo I ended up spending an age testing out the extra dimensions with the excellent Equator synth. This really is a keyboard to try out if you can...

On to new gear I know rather less about and there were a couple of great-looking bits of tech from Denon and Numark. We're talking DJ technology, of course, but it's nice to see a similar trend of a move away from the computer that we've witnessed in the music production market now happening in the DJ tech arena. The **Numark Dashboard** replicates your desktop on one of its three hi-definition screens to enable mixing, while the **Denon MCX8000** is a controller that replicates all of your turntabling in hardware but allows you to mix what is on your hard drive or, more specifically, what is simply on a USB drive plugged into the back. Not to mention that the unit also looks stunning...

Then it was on to the first big press conference of the show, and Roland had booked out our afternoons to, on the face of it, tell us about only a couple of interesting new products. OK, there were a lot more, but *MusicTech* readers will probably only be interested in the **A-01 controller**, which was shown constantly connected to the (now shipping) **System 500** analogue modular. With a boutique-style mini keyboard and onboard sequencer, the A-01 appears a little 'Beatstep-like' in nature, but is in line with what you'd expect from Roland given its Eurorack thinking these days.



Jimmy Jam and Terry Lewis receive a Lifetime Achievement award



Surprisingly, there were another couple of non-gear announcements that made waves, including the **Roland Cloud**, a service that will include storage, virtual instruments and (no doubt given that this is very much a theme of this year's NAMM show) collaboration features. Then there were **Roland's new accessory ranges** – think bags, stands, etc – and Lifetime Achievement awards given out to the production duo **Jimmy Jam & Terry Lewis**, thanks to their association with Roland gear over many years producing everyone from a brace of Jacksons to The Human League. Not mentioned that much was **Roland 2.0**, a new logo constantly in the background and new era for the company perhaps? Certainly, after several turbulent years, this is one giant of a company, that looks to be getting back on track.

Top right: Roland 2.0 – a new era?

Above right: The Numark Dashboard – three screens in one

Above, clockwise from top left: The Roland Boutiques – see our review p60; ROLI's RISE 49 – bloody great; the Roland A-01 controller and System 500; and the Denon MCX8000

THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

It's so easy to get excited by the headline grabbers of any NAMM show, so this year *MusicTech* searched out the products of the show that didn't necessarily make the headlines... until now. Here are our best six products of NAMM 2016 that you may not have heard about...

01 ORCHESTRAL TOOLS METROPOLIS ARK 1 – MORE DRAMA THAN WAR AND PEACE

There's just so much to like about this that we are already thinking of things to delete from our hard drive just to make room to install it. It's basically an orchestral instrument, but that description does it a huge disservice, as this thing is Epic with a capital E. From the look of it, based on the 1920s film, you know from the off you're going to get something special, but the demo at NAMM literally blew us into the next hall. It features huge choirs, huge horns, huge bassoons, huge strings, OK huge everything, and seems capable of adding drama to everything. Possibly the most excited we've ever been about something orchestral and something in software. See our full review on p58

http://orchestraltools.com/libraries/metropolis_ark_1.php



Metropolis: stunning, as we reveal in our review in this very issue

3XS FWX99 PowerDAW

The FWX99 PowerDAW is our best value, high performance studio system. Designed around a selection of hex-core and octa-core Intel CPU options and capable of hosting a massive 128GB of RAM, this system is quite simply a versatile powerhouse ideal for all your production requirements.



Audeze LCD-X Headphones

"To call the LCD-Xs good would be an understatement on a par with describing the Beatles as popular, or Picasso as handy with a paintbrush. Because they're not good. They're amazing... Simply the best-sounding headphones I have ever heard, with incredible musical dynamics and a remarkably neutral frequency response." - Sam Inglis - Sound On Sound - October 2015

Supplier of performance hardware and pc audio workstations. Intel Inside®. Extraordinary Performance Outside.

The FWX99 audio PC is our high end studio solution for artists who find themselves really pushing the limits. Designed initially as the ideal solution for artists working with large sound banks and processor hungry plug ins, this base system with the 5820K CPU solution offers up 6 cores of processing power with hyper threading giving a total of 12 logical cores to drive your software. The is the also the additional option to upgrade this CPU to an i7 octo-core solution, which can offer up to another 40% performance in real world usage and is quite possibly the most powerful single processor option currently available. As with all of our audio production PC systems, noise levels are kept low and unobtrusive thanks to careful component choices, which include large and slow fans on the case, cooler and PSU options. These are all carefully chosen to ensure the maximum cooling with the minimum amount of noise, ensuring high performance and the minimum amount of disruption to your working environment. This model also offers the ability to add in both Firewire and Thunderbolt support through additional add in cards, ensuring that no matter what you choice of interface this system is a perfect match to be the heart of your studio both for now and many years to come.

3XS FWX99 PowerDAW With 4th Generation Intel® Core™ Processors

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DAY 2**NAMM 2016 SHAPES UP TO BE THE MOTHER OF ALL SYNTH SHOWS...**

→ So a brief but unexpected day one of NAMM, but as it closed the rumours were already rife: NAMM 2016 could well be the year of synths, synths and more synths. And those rumours were to be proved correct: the hardware synth would once again be the star of the show...

People like to give themes to NAMM shows – well, I do (when you've been to as many as I have, you try to remember them in themed chunks). So there was 'the iPad show' a few years ago, then there was 'the software year', when the entire music gear community announced that every studio item was going to be replaced and recreated in software and the NAMM show became essentially a laptop running in an aircraft hangar.

This year was always going to be 'the hardware synth year' – even the pre-NAMM rumours suggested so: **more cool modules from Teenage Engineering** (true!), a **new synth from Yamaha** (true!), an **ARP 2600 from Korg** (false, although there was one surprise from Korg), and a stack of **new Eurorack modules** (true!). So, yes, NAMM 2016 was all about the synths. Those who know me will realise that will make me very happy, but even if you don't like synths the hardware trend they're pointing to means an exciting time in music production for all of us. But before that, here's more on the new NAMM releases.

Firstly, the potential star of the show – the **OB-6, from Oberheim and Dave Smith**. Yep, you read that right – it's like a supergroup of synth design, as when Dave met Tom they decided to make a synth and the result was 'molder' (sorry Heart to Heart fans). Actually, the result is incredible. I snuck into the show before it opened (quite by accident, of course – I wasn't trying to get in before the show opened to get some sneaky early pictures, oh no), and the OB-6 was sitting there next to Sequential's awesome (sorry y'all, I was in America) **Prophet-6**, a synth so good I bought it after writing my review. Where that is a gent, a true synth with a true tone – and one you can create monster sounds with, the OB-6 is an out-and-out dirty and rude kid from the off, with more snarl than your teenage kids – expected price around £2,000.

Talking of which, and not quite synths (actually not quite anything you can easily categorise), Teenage Engineering had **three more Pocket Operators** on show. These are chip tune devices for beats, melody and office noises – yes, office noises. We loved the £70-a-pop originals from last year, so these are bound to shape up to be as good, if more lo-fi.

On to hi-fi, and at the other end of the scale is a new mothership from **Yamaha, the Montage synth** designed with both MOTIF and FM engines – and one with a bloody great big colourful knob stuck in the middle of it, which turns out to be its genius. In the demo, this was used to control multiple parameters, including FM – those wanting sound design, movement and huge sounds, start saving now (it costs from £2,200). While everyone is going analogue, I wonder if this is a shrewd move from Yamaha – not everyone wants retro, and synths like this are now bizarrely in short supply.

But let's just go analogue for a bit. **Korg's Minilogue** (surely an anagram of Kylie Minogue) is analogue, polyphonic and about £500, and everyone I know who tried it swooned over it. It looks damn cool, too. Over the last 20-odd years, I do

recall asking several high-up people in various huge synth companies why they couldn't re-do analogue synths, and the answer was always one of cost. It's bizarre that that's apparently not an issue now. We knew about the Minilogue pre-show, but we didn't know about the **FM Volca unit**.

The **Arturia MatrixBrute** looks incredible, not least because if you get bored programming it you can enjoy a game of battleships on it*. I got a glimpse of it in its early stages of design, although the last time I saw it, it was a prototype made of cornflake packets. I can't wait to get hold of it properly. On closer inspection, it certainly was a beast, with assignable everything, multi-angled tilting fascia, wooden construction and oodles of controls. Chequebooks at the ready for an expected price of £1,500 to £2,000... **

Oberheim also had its **modular system** on show, which could rack up into a keyboard with a sequencer. It was slap-bang in the middle of the new analogue synth area. At one time at NAMM, modular synth companies were shoved to one side or grouped down in hall E, away from normal human beings, but such is their rise in popularity, all the companies were now in the main hall, and there are **so many bespoke synth companies** that we decided to dedicate this issue of *MusicTech* to the format.

So, NAMM 2016 carries on music production gear's return to hardware and hands-on music-making. It's a trend we saw yesterday, with Denon's new controller, is continuing into the DJ arena too, and ultimately hardware like this means better control, better workflow and a better creative experience.

* Obviously not true

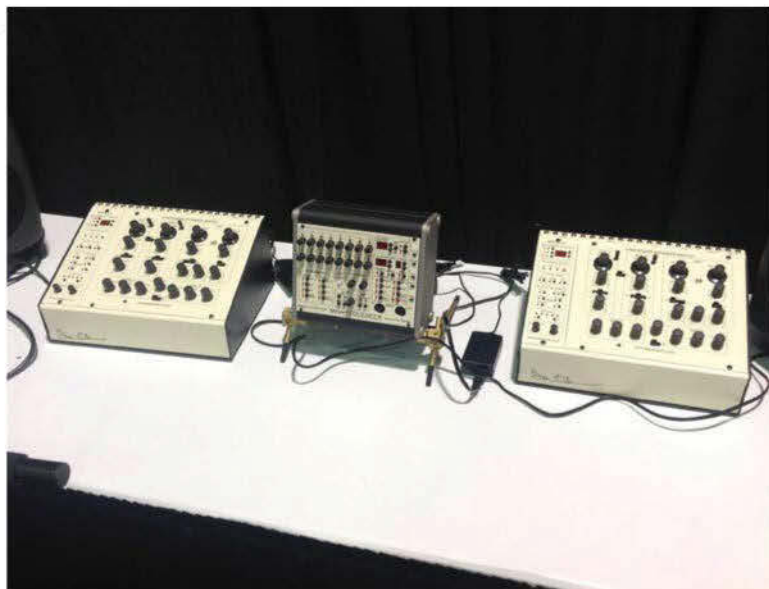
** Who uses cheques anymore?

THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

02 TRACKTION COPPER REFERENCE - THE BEST INTERFACE EVER?

You know we always say to make sure you have the very best components in your signal chain – from microphone to monitor – that you can afford? Well, this might just redefine the interface part. It claims to have the best components, the best converters and the best spec of any stereo interface. It's housed in a copper case with two valves on top of it and looks as if it could withstand a New York blizzard. We love stuff like this, the fact that someone's thought 'what the heck – what would I want if money were no object?' and then built it themselves. The price? Well what's \$5,000 among friends? We'll review it soon. Whether we'll be giving it back is another matter. <https://www.tracktion.com/products/copper-reference>





Left: Oberheim modules, plus new sequencer

Right: the Korg Minilogue – the Korg synth we knew about; the Volca FM was the surprise Korg unit

Below left: up-close with Yamaha's Montage mothership synth

Below right: Arturia's MatrixBrute turned out to be even better than we expected

Bottom: three new chip tune POs from Teenage Engineering

Opposite page: the Oberheim DSI0B-6 – the star of NAMM



THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

03 LUCAS NANO 608I – YOU COULD CALL IT AN IPA
When you work on a magazine in which pictures of modular synthesizers are becoming more and more prevalent, it's hard to get too excited by a PA system, unless it's this PA system. The Lucas Nano 608i is an all-in-one unit from HK Audio, which fits neatly and can be taken

pretty much anywhere, but the real beauty is that everything about it can be controlled via your iPad: levels, EQ, effects – you name it, all of the ins and outs are touch controllable, bringing a new dimension to your gigging.
www.hkaudio.com



Control your PA and band via your iPad? Yes please





THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

04 KEITH MCMILLEN K-MIX – FOUR IN ONE, SURROUND AND COOL AS ***

We have featured Keith's distinctive controllers many times in *MusicTech*. Again, it's someone going out on a limb to offer something a little different for those who create, and we're all for being the sheep dog rather than the sheep. K-Mix is an 8-in, 10-out audio interface, mixer and control surface all in one. It looks cool, glows in different colours and performs four neat studio functions. Did we mention it includes Ambisonics? That's a surround technology we last heard back at college, and if it works within this fella we'll be stunned. Can't wait to try it... www.keithmcmillen.com

Ambisonics in a controller and cool interface? You betcha!



Along with the Fat Bustard, this is the best-sounding analogue summing mixer we've heard. A world-class product

John Pickford *Music Tech* Sept 2015



CHOOSING YOUR BUSTARD

("or maybe it is just cutting your coat according to your cloth")

On the one hand we have the long established ultimate analogue summing mixer ***The Fat Bustard II***

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Nick Brine, producer/engineer Rockfield Studios. Oasis, The Darkness, Teenage Fan Club ...

"Amazing Box-makes every sound BIGGER"

Alan Emptage owner One Louder Studios. Arcade Fire, Joss Stone ...

"Vic you've done it again you old Bustard!"

Dave Eringa Producer, sound/mix engineer. Wilko Johnson & Roger Daltrey,*** The Who, Manic Street Preachers ...

THERMIONIC CULTURE
www.thermioniculture.com



DAY 3 WORK WITH ME ON THIS

→ We're often blown away by great products at NAMM – of course we are – but very often it's the trends behind them that we should be focusing on, and this year it's all about getting together and being nice. Yes it is...

I'm guilty of it. So are you. We all are. We look at all of these NAMM stories and get a little bit too excited over that latest synth over there (the OB-6, yes!), or that futuristic way of integrating hardware and software (VIP) and even the latest DJ tech (don't get me wrong, I'm no DJ, but I could be a globetrotting sensation with that new Denon controller, I'm sure of it).

We are all swayed and tempted by the latest colourful gizmos and blinking LEDs, yes I'm sure we are... OK, maybe it's just me, but behind all of it there is usually something going on – a shift, a trend that we don't see because of all those flashing lights.

Over the last few years, it has been the flashing lights themselves, **a return to a hardware-centric setup, more modulars, more controllers, less in the box.** Five years ago, **all of those modular synth companies** were buried in hall E – crazy guys with crazy machines, just for crazy people with too much money. This year, they've been released into hall A, rubbing their eyes in the sunlight as they're released from captivity down below to advertise their blinking wares to the mainstream crowds in the main halls. It's seismic, **but we knew about that one** – it's been happening all around us for the last few years. Hardware is back. Yes, we know that...

But, behind the scenes, this year I've had three conversations each about something else entirely, and it's all rather nice. It's summed up neatly by **Moog's Island Of Electronicus**, an oasis in the middle of the NAMM show, with people sitting down together to make a bit of music. I'm talking, of course, about **collaboration**, the music nirvana about which, ever since the internet was announced ("Ladies and gentlemen, I give you... the internet!"), people have said, "ooh we'll use that there internet to make music together".

From Res Rocket Surfer onwards, people have tried – with varying levels of success – but this year's NAMM could be where it starts to happen properly. First up, we spoke to **Ableton about Link**, a way for Live users to get together over a wireless network. As they say, "Playing together with electronic instruments hasn't always been so easy. Now Link makes it effortless. Link is a technology that keeps devices in time over a wireless network, so you can forget the hassle of setting up and focus on playing music."

We then spoke to **Avid** about its plans, and it sees it as a global service for any musician to be able to collaborate with anyone, using Pro Tools (of course), but the free version with which you can just record your part of a session without any outlay. Avid's Andrew Wild told us that the service has had the creases ironed out and is now ready; and because of Pro Tools' history and user base within the pro community, it will be a great way for session musicians to hook up and contribute to real-life projects (and even, damn it, get paid!).

But even better than both of these was a smaller company than either (at present anyway) – **BandLab**. Meng Ru Kuok from the company told us about its plans, which include an already operational social network with free access to worldwide projects, easy filtering, multitrack

recording on mobile devices (which looked darn easy, let me tell you) and basic instrumentation and mixing effects. If they get this one up and running properly, it could be the one that everyone jumps on.

Needless to say, we'll be looking at all three in future features in *MusicTech* – and don't worry, there was plenty of other great-looking gear at the show too.

Highlights include the small matter of the **smallest ever studio monitors from IK Multimedia**. Well, that's what the company told us they were, and even though our picture doesn't quite give away the size – think can of Coke – who are we to argue? InMusic, of course, had a whole bunch of new gear on offer, but the highlights were a new range of **M-Track interfaces**: think low-cost (from £90 upwards), high-bundle value (software worth £400). The company was also showing off the **VIP2 software**, which integrates your plug-ins with its hardware and now also works with effects as well as instruments. As expected, VIP has spread from Akai to the other brands within the InMusic portfolio, so was on display within an M-Audio prototype and the new Alesis keyboards on show.

DigiGrid had a new range of **desktop interfaces** on offer, which look like offering great quality for a lower price than you might expect (although this is to be announced). That aside, we rather liked the cube look of them...

Arturia's Keystep, meanwhile, could be a great little keyboard (even though it was overshadowed by its Brute of a cousin), as it offers the CV sequencing and control of Beatstep in a cool white finish.

Aston Microphones had a not entirely unexpected reflection filter on show. Called Halo, it is described as "bigger, lighter, has better isolation and absorption, is more balanced on your stand, has easier-to-mount hardware, and will give your recordings a more focussed sound. Less room, more you!" and is expected to sell for £250.

THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

05 BLUE MO-FI HEADPHONES – JUST CHECK OUT THE PICTURE

We all know Blue for its microphones: distinctive designs, great quality and super names. Now, the company has branched out into the headphone market and these are the results. As well as looking pretty amazing – and no we don't just go on looks, not all the time anyway – these have been, you guessed it, designed from the ground up. What this means in practice is that when you adjust the size to fit your head, you don't have to perform that awkward shunting movement that, more often than not, results in lop-sided phones. With these, you simply swivel the earpieces. Not only that, but they have the great specs you might expect – and we are pretty proud of the picture we took, too.

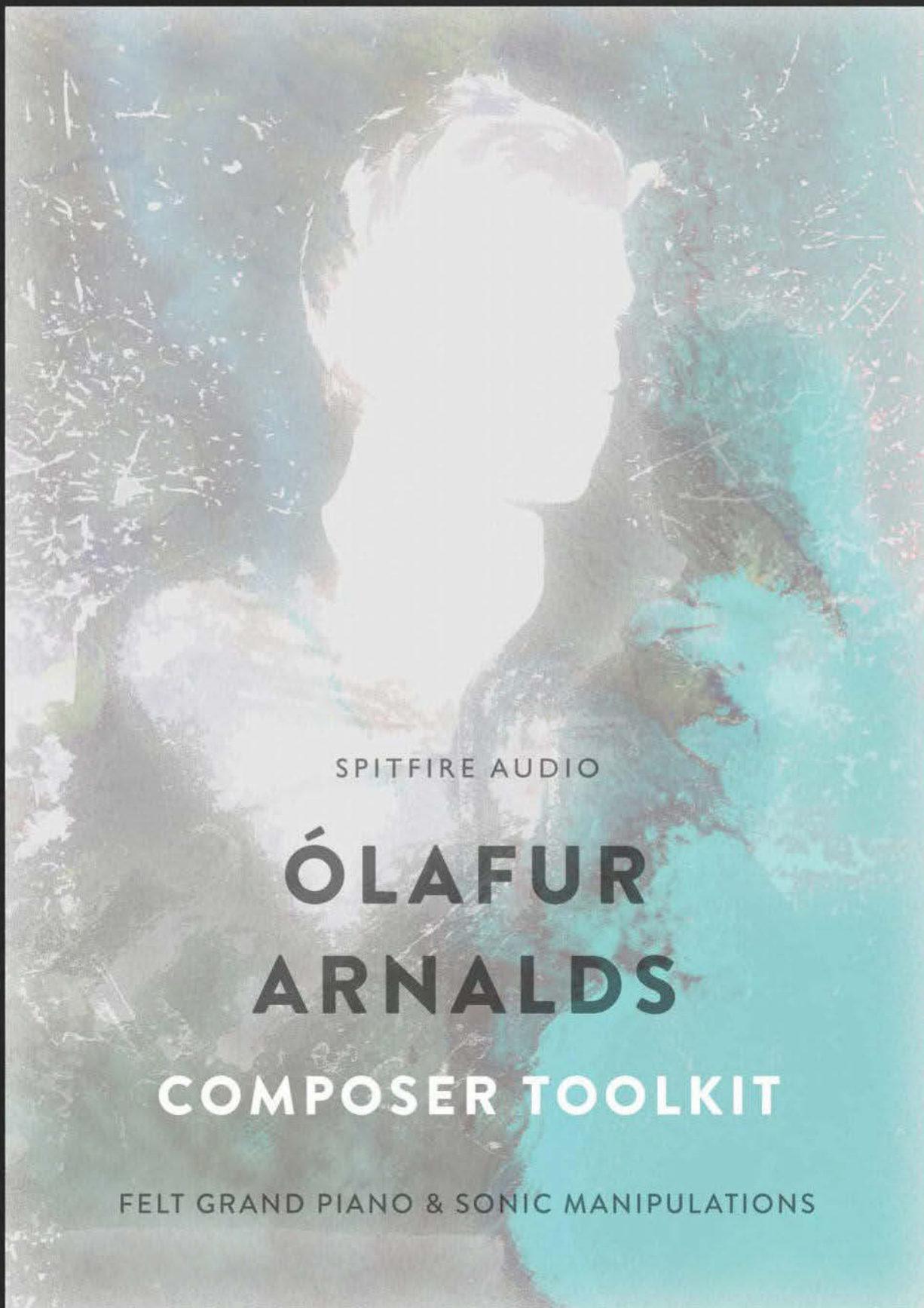
www.bluemic.com



Blue Microphones' new headphone range looks incredible

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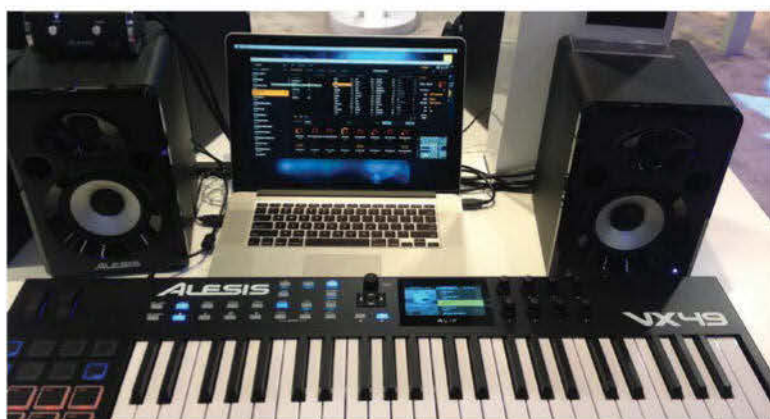
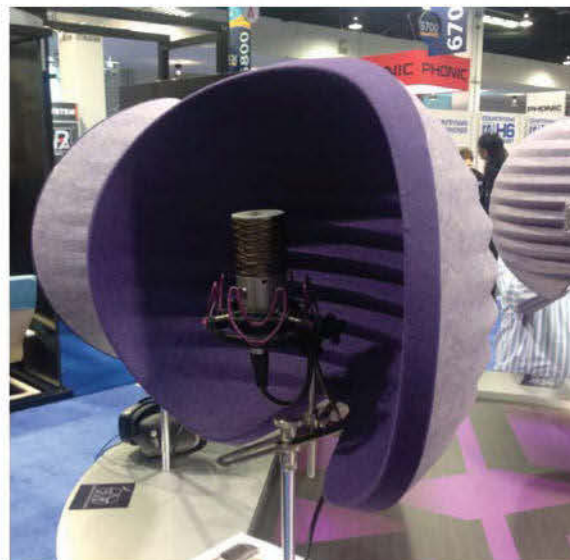
WWW.SPITFIREAUDIO.COM

→ Finally, another contender for Product Of The Show, certainly in terms of odd appeal, was the **Zoom ARQ**. Described as 'sequencer, looper, wireless Bluetooth controller, drum machine, MIDI controller and synthesizer', there is little that this round, futuristic device seemingly can't do. We had a quick play on it and were initially a little underwhelmed, until we realised it was stuck on a preset kit – but then we got it going and, yes, it certainly has a lot of appeal.

So that's it for another NAMM. Our products of the show? Well, we've scattered half a dozen that you may have missed around these pages and have reviewed one in this very issue although, as confirmed synth nuts, the **MatrixBrute** takes some beating, as does the **OB-6**. But then there's the **Waves Virtual Mix Room** plug-in. And the **Volca FM**. And... yes, simply too much to choose from. You will have to wait, then, for our full tests to see what the real winners are but, as ever, we'll be first with the big reviews in the magazine and online at www.MusicTech.net. **MT**

Right: Aston's Halo, less room, more you!

Below: Alesis keyboards, now with VIP 2; Arturia's Keystep – a great little CV unit; Moog's Island Of Electronics. Well why not?; DigiGrid's new range of desktop interfaces – we love the design; M-Audio's new M-Track range – low-cost, high-value software bundle; IKM's smallest monitors in the world?



THE SIX GREAT PRODUCTS OF NAMM 2016 (YOU MAY HAVE MISSED)

06 WAVES NX VIRTUAL MIXROOM PLUG-IN – PRODUCT OF THE SHOW?

When someone at NAMM tells you they're going to blow your mind, believe me, after 21 years of going to this show you just kind of respond with a shrug. Yeah. Whatever. So when we put on the headphones for this demo, we were already dismissing its claims and thinking about lunch. Then, boom. Product of the show. Seriously. This thing recreates a mixing room inside your headphones, and it tracks your head movements via your Mac camera or optional \$100 hardware add-on, so you move your head and your stereo monitor placement/mix moves accordingly, just as if you're sitting in a great mixing room. We'd pretty much already used up our allotted excitement quota by this point but then, boom, surround sound. Suddenly we were immersed in a full surround environment, again one that tracked our head movement and moved the mix accordingly. We hate the words 'game changer' but, there, we just used them, sorry.

So, yes we love the Arturia MatrixBrute, yes we love the OB-6, yes we especially love the Zoom ARQ drum controller, but the Product Of NAMM 2016 – surely a show that will go down in NAMM folklore as the Hardware Synthesizer Show – well that prize might well go to a \$49 software plug-in. Who'd have thought that four days ago? www.waves.com



A \$49 plug-in from Waves might just have stolen NAMM 2016

Pioneer



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RM Series active reference monitor
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MT Preview

Hardware ■ Software ■ Mobile tech ■ Accessories



Details

Manufacturer

Yamaha

Kit Montage

Price Montage 6 (61-note synthesizer action) £2,200; 7 76-note (synth action), £2,650; and 8 (88-note fully-weighted) £2,900

Web uk.yamaha.com

Key Features

- Motion Control Synthesiser with AWM2 and FM-X engines
- Sophisticated Dynamic Control
- Super Knob for multiple parameter changes
- Motion SEQ
- Envelope Follower
- Effects include Virtual Circuit Modeling (VCM), Beat Repeat, Vinyl Break, Bit Crusher, compressor with sidechain, plus retro vintage effects such as Analogue Delay, VCM Phaser and a variety of amp simulators
- Pure Analog Circuit (PAC) 'improves the quality of signal after being converted to analogue from digital'
- USB Audio and MIDI
- Seamless Sound Switching
- Live Set
- Direct Control Assignment
- Cubase AI bundle
- Dimensions (w x h x d in mm):
6: 1037x131x396
7: 1244x131x396
8: 1450x160x470
- Weight (kg):
15/17/29

YAMAHA Montage

MusicTech editor **Andy Jones** gets an exclusive delivery of Yamaha's brand new mothership Montage synthesizer. And it's big, in every sense...

Montage is Yamaha's brand new flagship synthesizer, and it is really big, in just about every way you can imagine. I've had the unit for a few days, and there's so much going on with it, that rather than rushing a full review, I thought I'd give you a taste of the time I've spent with it so far.

You could call Montage a mothership if you like, but don't call it a workstation, as Yamaha has got rid of most of the features you might associate with that old 90s concept – or if it hasn't got rid of them, it's certainly either hidden or updated them for the DAW-conscious audience of the 2010s. Yamaha says that the majority of its customers simply weren't using the pattern and song sequencers on its older models nor the ability to sample, although on that latter point Montage has an increased capacity to load in third-party and library waveforms by increasing the keyboard's flash memory to 1.75GB.

Yet, despite a perceived lack of workstation features, Montage is the

most fully-spec'd synth Yamaha has ever released and 'easily the best' according to the company. And while, of course, Yamaha would say that, one listen to what it is capable of and it's hard to argue with its huge sound. But before that, I had to get it up the stairs first. Montage comes in three flavours: the 61-note '6', the 76-note '7' and the 88-note '8'. I had the 88-note, a proper player's model and one of a weight that your roadie might not thank you for.

The Montage engine

The main engine within the synth is called The Motion Control Synthesis Engine – that is an umbrella that encompasses an AWM2 and FM-X engine, the sound generators behind Montage. There are also some great control elements, including eight real-time dials that will be familiar to MOTIF users and the multi-illuminating Super Knob, which won't – more on this later. One of the Montage's big stats – of which there are many – is that it ships with 5.76GB of AWM2 sounds (around eight times the amount on the original

MOTIF), plus a new FM engine's worth of sound banks. There will, then, be literally thousands of sounds to choose from when the keyboard ships, and with 16-part performances and 128 notes of polyphony for each of the synth's two engines, you can be assured of not just plenty of sounds, but massive ones.

Touch the layers

At the keyboard's centre is a large touchscreen that is very usable, with tabs running down both sides and the ability to switch easily between the keyboard's primary modes. The main one of these is Performance mode, in which the keyboard stays pretty much the whole of the time. Think of this as a massive multi set-up, limited only by that polyphony (ie, not much). You enter Performance mode and the screen shows you up to 16 parts over two screens (eight per screen), and here you can choose the sound on each part, plus levels, effects and so on. Adding a part is simply a case of hitting the + key, and then you get taken to the main sound selection menu.

Playing a single sound, such as a piano, on the Montage is a matter of just having a single part within a Performance selected and playing it as normal. Want to use the Montage as a big electric piano? Select one part within a Performance and play, although even the individual parts are huge – the Concert Grand Piano sound is just one example and contains 10 dynamic layers and 300MB of samples.

One thing worth pointing out here is that the keyboard works best in Performance mode, when just eight of the possible 16 parts are selected, as you can take advantage of the Seamless Sound Switching feature, which stops dropouts between Performances – effectively it keeps notes in one Performance going while you dial up another.

which can hold 16 Performances. For the live player, the benefits are obvious: you could have a setlist stored in here with a Performance per song, for example, but you could also use one for an intro and one for a chorus. And as with so much on the Montage, you can go even deeper...

The Scenes area

To the left of the keyboard is the Scenes area, where you can take a snapshot of the keyboard settings for however you are using it at any time. So Scene 1 within a Performance might have certain parts within a Performance switched on and Scene 2 might have others, perhaps with different effects. There are eight Scenes available per Performance, and these allow you to store all sorts of settings – not just the

The Super Knob

This is that glowing dial sat in the centre of Montage. It is one of the main new features of the keyboard, and is essentially a macro control, where you assign multiple parameters to it – assigned by those eight knobs to the left. This can change multiple parameters at once, and a foot pedal will also mimic it – so pro players needn't worry about using one hand for all of this extra control. You can, for example, turn the Super Knob and it will increase all of the parameters assigned to all eight knobs, or you could turn it and decrease half and increase half – you choose.

Motion Control Sequencing – a 'completely customisable control sequencer', as Yamaha describes it – is another big Montage draw. Think of it like the automation tracks in your DAW, so in a Montage Performance you can have eight parts with four lanes of automation each, which can be sequenced together with 16 steps. This is 'control sequencing', as opposed to song sequencing (Montage does have a basic sketchpad song sequencer, by the way), so is used for building and changing sound parameters as opposed to complete tunes – although hearing MCS in action, you soon realise that it adds enough elements to create such diversity within single sounds that complete tunes can be created with just a few note plays. This is the sound design part of Montage that was emphasised in the demo at NAMM – basically think about huge sounds with a lot of motion and emotion, morphing and movement, all of which is programmable and something you can define over time. It's new to Montage and will earn it many fans.

One final feature worth mentioning is the Montage's Envelope Follower, which utilises the analogue inputs to measure the tempo of any analogue signal – drums or vocals, for example – which it can then sync to the internal arpeggiator. What this means in practice is that Montage can sync to your drummer should you wish! You can also use the now-ubiquitous side-chaining effects with this.

By now, you should realise Montage has layers and layers of 'bigness', and it certainly looks like a fine update to the MOTIF concept, one of the most successful keyboard ranges in history. I'll be spending a lot longer with the keyboard over the coming weeks and will bring you a full review in the next issue of *MusicTech*. **MT**

Think about **huge sounds** with a lot of **motion and emotion**, **morphing and movement**

Live Set mode

Which brings us neatly to Live Set mode. As you might expect, there's a lot more for live players here, including this mode where 16 Performances are shown on screen, complete with all of their parts, so that you can switch between these groups of sounds (or massive single sounds, should you be so inclined). The SSS feature really comes into its own in this mode.

Live Set mode is also useful, in that it reveals, at the bottom of each of the 16 Set parts, which of the synthesis engines (FM or AWM) each Performance within the Live Set utilises, and whether SSS is enabled. There are banks of Live Sets, each of

levels and parts but many parameters of each part, all controlled by the knobs and dials above the Scene area. These will be familiar to MOTIF users who have used a similar system to get hands-on with their sound parameters. They are most often used within Performances to control parameters in real time, and are fantastically easy to use – you simply select a parameter by way of a matrix menu system and then adjust via the eight dials. In Scene mode, you can save the parameters as snapshots. For example, switch between a Scene on a basic level to increase the attack time on a Wurli sound, or add reverb and depth to a piano as you step through the Scenes.



BACK TO THE FUTURE

Welcome to a brand new feature where we look at the greatest pieces of classic studio gear and how you can recreate their sound with new hardware and software. To start, **John Pickford** looks back at the Pultec EQP-1A...



Some designs are so inherently right that they live on decades after their contemporaries have been forgotten. Electric guitars such as the Gibson Les Paul and Fender Stratocaster first appeared in the early 1950s, yet they still outsell a multitude of newcomers and their iconic styling has been copied repeatedly.

The Pultec EQP-1A equalizer is one such design, originally launched in 1951 and remaining in production today. Several manufacturers produce their own take on the original, ranging from exact copies to scaled-down versions incorporated into modern units; the authentic sound of the Pultec can also be heard as a plug-in.

Original EQP-1As were designed and built by Pulse Techniques, a company formed by Ollie Summerland and Gene Shank in Teaneck, New Jersey, USA. The small township of Teaneck holds a special place in the hearts of sound recording historians, as it's not only the birthplace of the legendary equalizer, but also the town in which Les Paul (co-designer of the guitar that bears his name) set up the world's first multi-track recording studio. Summerland and Shank hand built the very first units, named the EQP-1 and, following an early modification to the design, the EQP-1A was made available to recording and broadcast studios.

The Pultec is known as a program equalizer, meaning it can be used to shape the tone of finished recordings as well as individual sources, making it an effective mastering EQ.

It's a 3U all-valve design that makes use of EEC 82 and EEC 83 valves alongside the 6x4 valve in the onboard push-pull amplifier. Operating as a no-loss passive equalizer, the amplifier restores the signal level that is reduced when audio is fed into the unit. This means that the signal level remains the same regardless of whether EQ is switched in or out, which is useful when comparing a flat signal to an equalized one, deftly avoiding the 'louder is better' trap.

There are three sections to the equalizer, with the low-frequency section operating as a shelving EQ, providing four frequency bands at 20, 30, 60 and 100Hz. These frequencies can be boosted to a maximum of 13.5dB and attenuated (cut) by 17.5dB. As the boost and cut frequencies overlap, it is possible to create some interesting EQ curves by boosting and cutting a frequency simultaneously. If the frequency selected is 100Hz and both the Boost and Atten (cut) controls are turned to 7, the EQ curve displays a 'midrange droop' centred on 1kHz. But if the Atten pot is returned to zero and the boost is still applied, the low-end frequencies remain the same but the droop disappears.

This method has become known as the 'Low End Trick' and is one of the Pultec's most useful features. The original manual advised that the Boost and Atten controls should never be used at the same time. It's ironic, then, that the unit's ability to do just that has helped earn its iconic status.

The Pultec's high-frequency section features a boost-peaking EQ and offers seven centre frequencies – at 3, 4, 5, 8, 10, 12 and 16kHz – which can be boosted by up to 18dB, while a Bandwidth control alters the Q of the equalization curve from sharp to broad. The high frequencies can also be cut at 5, 10 and 20kHz. This is a shelf cut with up to 16dB of attenuation available.

Above: The Pultec Program Equalizer EQP-1A

The Pultec EQP-1A can be heard on thousands of recordings including almost all of the Tamla Motown productions from the 1960s. It is a first among equalizers.

EQP-1A in use – The Low-end Trick

Simultaneously boosting and cutting the low frequencies can produce musically pleasing results. Bass drums can be enhanced by selecting 30Hz and dialling in similar amounts of boost and cut. This gives a smooth peak centred around 80Hz, providing some low-end heft while scooping out some low-mids where the sound can be a bit muddy. The EQP-1A's HF section can then be used to add definition to the click of the beater by boosting at 3, 4 or 5kHz, while the sound can be rounded off nicely by gently attenuating the extreme top.



Get the Pultec sound in hardware

You'd be surprised at how many companies there are producing boutique outboard gear these days – studio hardware has made a comeback in recent years. With such a great reputation, the Pultec was always bound to be a target for these companies, so there are a good number of clones.

The one that stands out and calls itself a 'continuation' rather than a remake is the **PULSE TECHNIQUES EQP-1A3**, designed and manufactured to the original specifications to ensure that it sounds just as the original models did when new and fully on-spec. It was developed by Steve Jackson, who 'committed to faithfully recreate Eugene Shenk's original Pultec'. It's the most expensive of the hardware units you can get, but arguably the best.

Price £3,400

Web www.pulsetechniques.com

London-based company Cartec Audio produces a faithful recreation of the design, replacing the original blue-grey finish with a nice shade of British Racing Green for its **EQP**

Price £2,100

Web www.cartecaudio.com

Tube-Tech (Lydkraft) of Denmark offers the **EQ PE 1C**, similar to the EQP-1A but with added mid/high-frequency boost options at 1, 1.5 and 2kHz.

Price £2,100

Web www.tube-tech.com

Californian company Manley employs **EQP-1A-STYLE** curves in both single-channel and stereo units.

Warm Audio has its **2U EQP-WA**, which retains the HF boost options of the Pultec and adds 3 and 4kHz to the HF Atten

(cut) section. This is currently the most affordable way to get a valve-based Pultec-styled equalizer.

Price £549

Web www.warmaudio.com

Finally, you can (or could) build one your self from companies such as RecPro Audio, which had a DIY kit for sale for \$1,645. These are currently not in stock, but you can get more information from the website.

Web www.pulteeqp1a.com

Get the Pultec sound in software

Santa Cruz-based Universal Audio produces some of the most respected digital

simulations of classic recording equipment. The UAD Pultec is modelled on a specially selected '**GOLDEN**' EQP-1A and, just like the analogue units, subtly enhances source material even when no EQ boost or cut is applied.

Price £229

Web www.uaudio.com

Waves offers the **PUIGTECH EQP-1A**, which replicates Grammy Award-winning engineer/producer Jack Joseph Puig's original hand-crafted Pultec. It also recreates Pultec's MEQ-5 midrange equalizer, that operates in the mid frequencies complementary to the EQP-1A.

Price \$299

Web www.waves.com MT

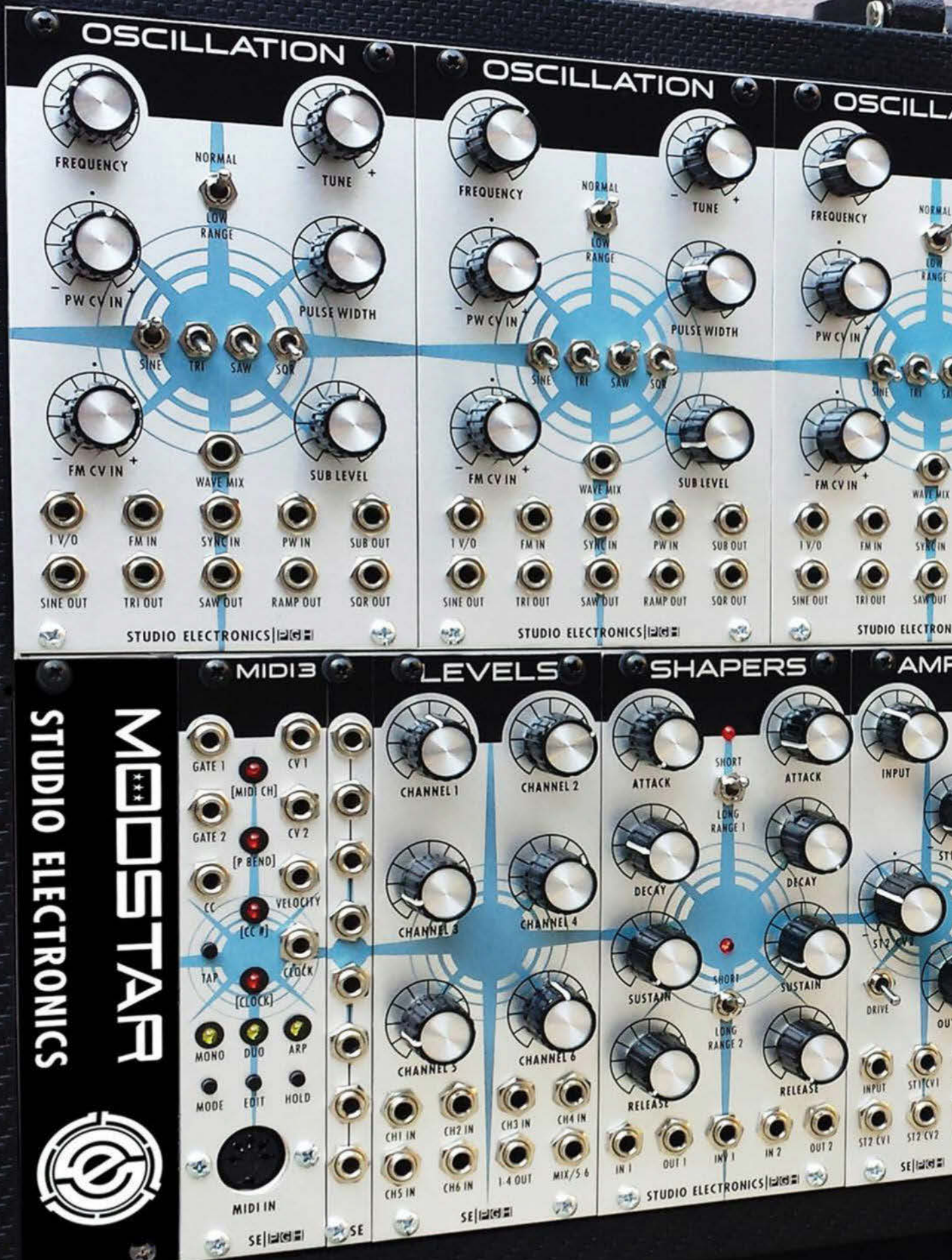
SONIC SIGNATURE

The term sweet-sounding could have been coined to describe the Pultec EQP-1A. The boost-peaking high-frequency control can be used to add a warm, natural presence at the lower settings with a broad bandwidth Q, while the 16kHz setting adds a wonderful sense of air and space that is superb on vocals. The low-frequency shelving boost adds real low-end heft to all manner of audio, from completed mixes to individual instruments, while employing the Low-end Trick will shape your sound in an intuitively musical way.

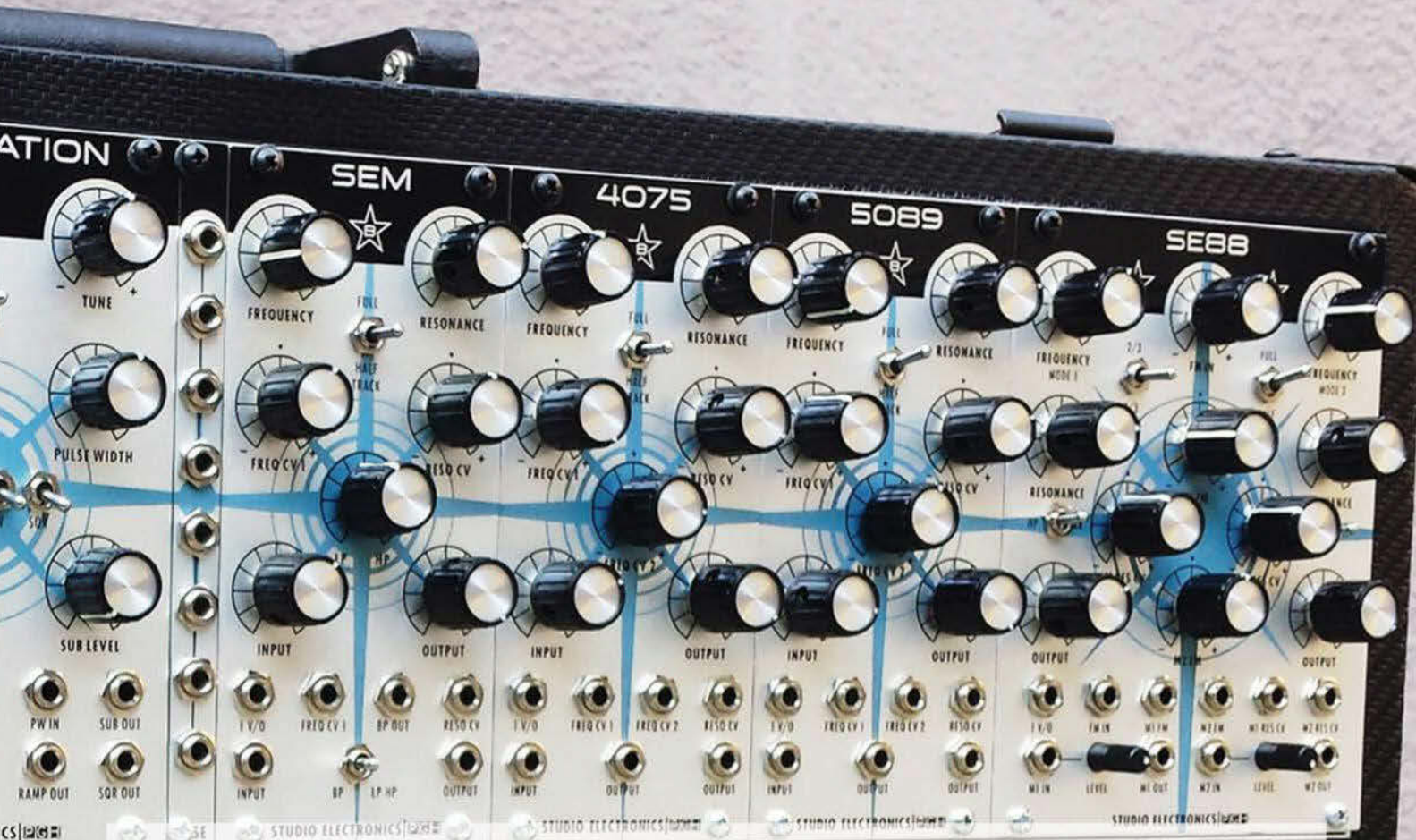


Clockwise from top:
EQP; Warm Audio;
Pultec collection;
PuigTech EQP-1A;
Tube-Tech; Cartec





Just look at that. Boomstar's Eurorack Modstar is one of the best-looking systems out there. We want...

**MT Feature** Modular Mayhem

Build Your Own **Eurorack** Modular Synthesizer System

**Part
one**

Cases, Cabinets & Power

Eurorack is everywhere, with even the big corporations jumping on board this innovative format. **Dave Gale** plugs up a patch and considers the options for creating a new system...

If I think back to my early years, music videos were not the commercially polished products that they are now, often making do with the star of the day singing, or more accurately lip-syncing, to their current single. However, certain videos stuck with me, as I was transfixed by what could only be described as a wall of sockets with an enticingly large amount of cabling plugged into the front.

As for many people, this was my first view of a modular synthesizer, and this is hardly surprising given that moduls of this time would cost as much as a small house! They were the preserve of pop stars, or more likely their producers. Jean Michel Jarre, Giorgio Moroder, Yellow Magic Orchestra and even Stevie Wonder were huge advocates of this powerful technology. One of the earliest exponents of the Moog Modular was Wendy Carlos, and for many, the front cover of the legendary *Switched-On Bach* album, with the Moog Modular being operated by JS Bach himself (well, a looky-likey!), was equally awe-inspiring (it's worth noting that Bob Moog objected to the original cover, as the headphones were plugged into the filter input, obviously meaning no noise would be heard).

Move on about 30 years to 1995, and a certain Herr Doepfer from Germany started producing some new designs for a compact modular synthesizer, which became the format now known as Eurorack. It developed into the most popular format for the synthesist who wanted to build up a modular system, with dozens of small and boutique companies springing up – building both traditional and quirky modules, all of which may have a valid place in a creative set-up.

The nuts & bolts

There is no doubt that the largest part of any initial Eurorack budget will be spent on the start-up and, in the very first instance, this means a case or cabinet

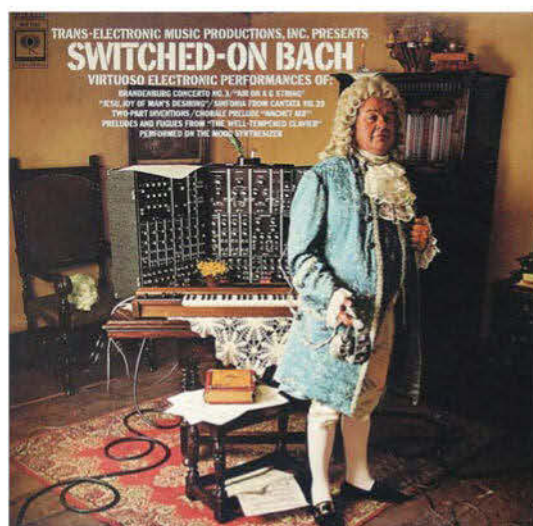


One of the earliest successful users of all sorts of synthesizers: Jean Michel Jarre

You'll need a good case to get you going, like these from Tiptop. This is the Station 252 with pre-loaded Zeus power. Notice the blue LEDs signifying all is well with your power distribution



There is no doubt that the largest part of any initial Eurorack budget will be spent on the start-up



One of the first experiences for modular synth owners was *Switched-On Bach* by Wendy Carlos

and some power. Despite this, it is possible to cater for all budgets.

The first question to address is 'do you need to be mobile?' There are many cases available, allowing you to take your modular out on the road, but these do tend to be smaller in size, and more expensive than their cabinet counterparts, which are generally designed to stay at home in the studio. Of course, there is nothing to stop you having both, and a mobile system can be used in both mobile and studio settings.

A key feature of Eurorack is the format itself. The modules are all the same height, which is conveniently

CASE, CABINET AND SKIFF COMPANIES

- Syntracks – skiffs & cabinets
www.syntracks.co.uk
- Ross Lamond – bespoke skiffs & cabinets
www.lamondesign.co.uk
- Monorocket – cases & cabinets
monorocket.blogspot.co.uk
- Pittsburgh Modular – cases & cabinets
pittsburghmodular.com
- Moog – skiff
www.moogmusic.com

the same as a conventional 3U rack – 5.25 inches in old money. However, the width of modules is measured in a unit known as HP, a single HP being 5.08mm. Modules are screw fixed into rails, usually with M3 bolts, which are mounted top and bottom. To come back to our studio rack analogy, 84HP is about the same width as the aforementioned 19" rack format. From here, it's a straight mathematical calculation, so a 168HP width rail will be twice as wide. As a consequence, certain sizes do seem to have become

Right: Doepfer was one of the first companies involved in Eurorack synths and makes several specific racks, including the LC-09: three rows of 84HP, with a pre-loaded AC power supply



There are **plenty of companies** who have 'off the-shelf' solutions for the **beginner and smaller system**

more predominant, rather than just plucking figures out of the ether, and they tend to be 48HP, 84HP, 104HP, 126HP and 168HP (other variants in width can be found!). Keeping to these width sizes will mean you can buy cases and cabinets more readily, although if you are handy with the carpentry set there's nothing to stop you buying Eurorack rails and cutting them to the size you require. There is a case (no pun intended) for sharpening the tennon saw and knocking something up from MDF if you like folding out the Black and Decker Workmate on a Sunday (See DIY box).

A case for all seasons

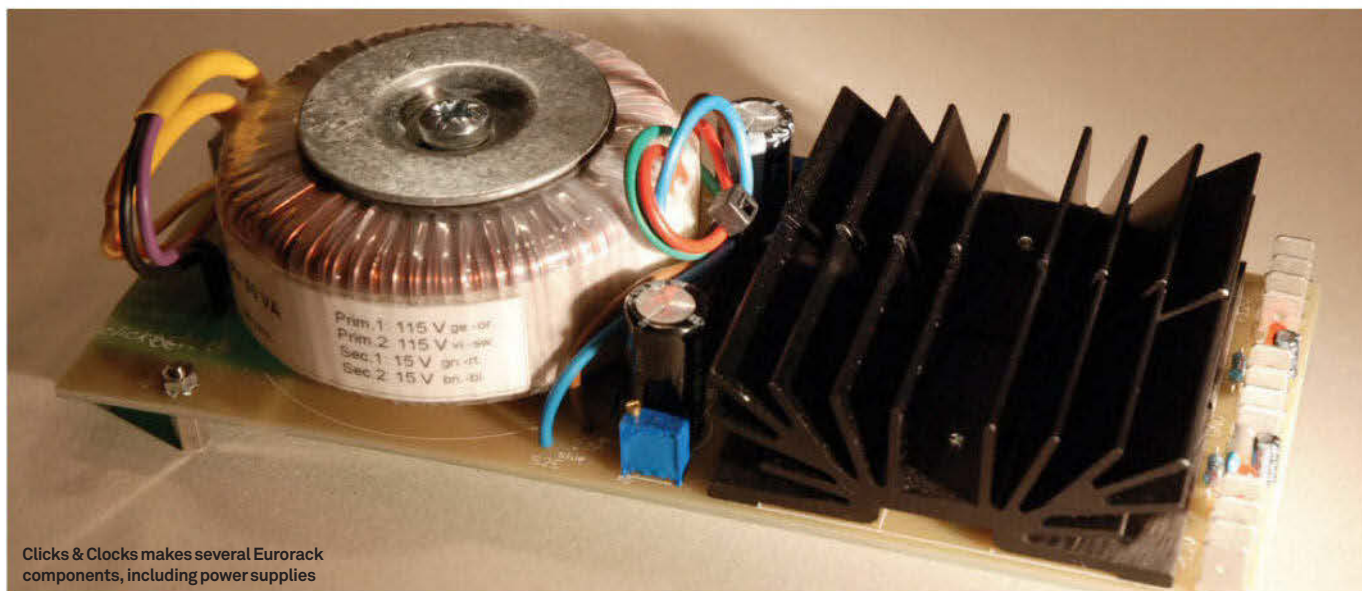
There are plenty of companies that have 'off the shelf' solutions for the beginner and smaller system. Tip-top Audio's Happy Ending Kit comprises a 3U 19" rack mount kit of 84HP, with a uZeus DC power supply. Apart from being sensibly priced at just over £100, this will allow you to plug in and power 10 units (expandable), and has the added advantage of fitting into a rack, which you may already have.

Next up is the company that started the whole Eurorack adventure. If you are on a tight budget,



EVERYTHING
YOU LOVE TO
HEAR IS MADE
WITH WAVES

www.waves.com



Clicks & Clocks makes several Eurorack components, including power supplies

→ Doepfer is a great place to start for most items, as its units are very well built and highly cost-effective, and they deliver in the cabinet department too. For around the £200 mark, you can look at one of the company's low-cost cabinets, in the shape of the LC-3, LC-6 or LC-9. These are respectively one, two or three rows of Eurorack, housed in a natural wood cabinet. It's basic, but a superb option, and many purchasers then choose to stain or paint the wood, which can look very effective. They also have an in-built power supply. However, unlike the previously mentioned Tiptop system, it is AC-based, rather than DC, which essentially means that it has a large transformer built into the back of the case (see Power later).

If you want to go a little more bespoke with your Eurorack design, there are quite a few companies that make small cabinets and cases without power, and you should not be afraid of buying a case and fitting your own power supply. Smaller single- or double-row

■ If you want to go bespoke, there are companies that make cabinets and cases without power ■

cabinets, that fit nicely on a desktop, are known as skiffs. You've only got to type 'Eurorack skiff' into eBay to find several carpenters making real wood skiffs for very sensible money. One such furniture maker is Synthacks.co.uk, which has a proven track record in making studio furniture, and now Eurorack skiffs and cabinets, available to buy directly online.

Some companies also produce skiffs with the option to expand. Pittsburgh Modular, with its Cell series, and Moog, with the 60HP skiff, both offer solutions where you can mount two or even three units in a desktop system. Very tidy with a small footprint.

If a skiff is going to be where you feel you might venture, be aware of one small point. Skiffs, by their very nature, tend to be quite shallow in depth, and whilst most Eurorack modules are not especially deep,

■ DIY CASES OR CABINETS

If the temptation to knock up a cabinet all of your own is too great, then you can find plenty of help online. A good starting point is www.muffwiggler.com, which is an online community of fellow modular users. Apart from all the usual forum-type advice on all manner of subjects, you can find pictures and plans here that will point you in the right direction. Similarly, good advice can be sought from clicksclocks.de, which was set up by Stefan Burbella some years ago, as both a resource and a shop for anyone wishing to make their own cases or cabinets. Rails, power supplies and everything else that you might need are available here; in fact, all the things that you won't be able to get at your local DIY shop. Doepfer also makes and sells components and kits, offering a one-stop solution for the DIY-er!

some can catch you out, so always research the depth of the modules that you think you might purchase first. Two-row skiffs do tend to be at a slight angle, so the front of the skiff may well be shallower in depth than the rear, giving some room for manoeuvre. You might also need to place bus boards in the skiff, which will reduce the depth further (again, see power later).

Moving into the mobile arena tends to immediately push up the price tag. Monorocket makes some wonderful case-based designs, which vary from small, single rows to much larger case sizes. These are available with power, so are a good solution, but do start from a price of around £500. Pittsburgh Modular also makes a series called 'Move', in which you can buy a complete system. The Move 104 and 208 are one and two rows respectively, and come complete with power. You can also buy the Move 208 half full of Pittsburgh modules, known as the Foundation 3.1+, allowing you to immediately expand as soon as you feel the need.

Looking toward the upper end of the market, Ross Lamond has been making Eurorack cabinets of enviable quality for many years. His products are hardwood designs with or without power and Ross recently completed what is thought to be the largest single Eurorack case in Europe, consisting of nine rows of 168HP. His cabinets start at £250 for an unpowered skiff, and creep up according to size and power.



It would be remiss of me to talk about all of this without recounting the direction that I elected to travel in my own quest. I decided that I wanted to have a purpose-built case, which looked a little like a large EMS VCS3, predominantly because I also wanted it to match my existing studio furniture. Eurorack is a hard habit to break, hence the nickname 'Eurocrack', and the overwhelming point that many friends mentioned was that whichever direction you take, you will probably always want a bigger case or cabinet, so I elected to have a cabinet made of 126HP and six rows. I also wanted to fit my own power, and do so in

The Synthrotek Noise Filtering Power Distribution Board

stages, in order to keep the initial cost down. Having said that, I also know of one person who has a large rack-based system, where they keep buying a 3U rack kit every time they run out of room. So it might not look as nice aesthetically, but it is clever because it is ever-expanding, and I'm sure it sounds just as fine as my system!

Power

It is fair to say that the power side of a Eurorack system is one of the most important areas for consideration and, certainly among existing users, is the single area that prompts the greatest debate. This is for good reason, as a poor-quality power supply can result in unwanted noise.

If you are intending to fit your own power, the first decision to make is whether to go AC or DC, and for many the idea of playing around with 240v AC, and indeed having a large transformer handling frankly dangerous voltages lurking at the back of your cabinet, may be a no-brainer. At this point, I must clearly state that if you do decide to go down the AC route, you should be competent at handling 240v AC electrics and if this isn't you, either steer clear or employ someone to check it, or fit it for you. ➔

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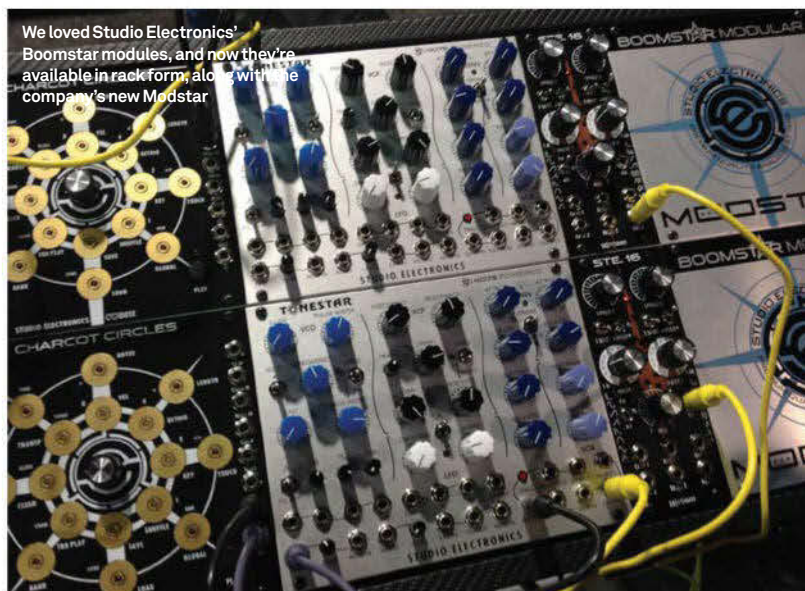
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→ With the disclaimer issued, it is time to consider what the advantages are. Purists will argue that an AC power supply is better suited to certain modules, and in the case of a larger system, is less likely to result in unwanted noise or earth hums. However, regarding the latter point, AC power supplies are normally placed in the rear of a cabinet and, depending on the size, more than one might be required. Each AC power supply has a large coil, which will produce a magnetic field, so an argument against is that the field may disrupt the audio signal, resulting in unwanted noise.

Once fitted correctly, AC power supplies are perfectly safe to use. The transformer, or multiple transformers, will in turn feed 'bus boards', which again are mounted inside the cabinet or case. This is where you plug in your modules, which in turn will draw their power.

As might be becoming clear, AC power supplies seem to be the preserve of the few who feel competent handling 240v electrics, so it is no surprise that buying



The AC power supplies that are considered to be the absolute best are made by Hinton Instruments

an AC power supply to fit yourself is quite a flexible affair. We have already mentioned Doepfer, and the low-cost (LC) Doepfer cases all use the Doepfer own-branded AC power supply, which can also be purchased separately. A very similar design is sold by Clicks & Clocks, and offers lots of useful Eurorack components, especially if you are considering making the cabinet or case yourself. However, the AC power supplies that are considered to be the absolute best are manufactured by Hinton Instruments. Hinton has solutions to all your AC Eurorack needs and can deliver a perfectly clean and regular supply to the largest of Eurorack cabinets.

Switching to DC-based systems, these have moved on leaps and bounds since they first became available, and the convenience of a power supply that is easier to work with at installation may seem like a better solution. The advantage over AC, apart from being safer to work with for the novice, is that there are a number of solutions which are readily available in a plug-and-play format – ideal for the beginner who wants to get stuck in.

Tiptop Audio makes a couple of solutions that are ideal. The uZeus (Micro Zeus) is a plug-and-play

12V AND 5V

While most Eurorack modules draw their power from a 12v DC connection, via a bus board or flying bus cable, some modules may require a 5v connection. These units are very much in the minority and are often of the digital persuasion. It is worth noting that most Eurorack power solutions include a 5v connector. However, some, such as the Doepfer A-100 power supply, do not. Helpfully, Doepfer also makes a 5v adaptor, that can be fitted, but this is in addition to the main power supply that it manufactures.



solution, consisting of a panel with a power switch and a pair of 'flying bus cables', allowing for the connection of up to 10 Eurorack modules. This can be expanded by adding additional bus cables. The uZeus is powered via a conventional DC 'wall-wart' power supply, which is connected directly to the front panel. It's a minimal-hassle solution for a small system; in fact, Moog recommends this power supply for people wishing to use their Mother 32 Semi-Modular synth in a Eurorack setting with their own case.

If you are aiming a little higher than 10 modules, the next Tiptop solution is the Zeus. This is a very similar concept, with a DC power supply being plugged into a Eurorack mounted switching panel, which is in turn connected to bus boards. The boards can then be connected in series using readily available 16 core electrical cable. One particularly strong selling point is the quality of the studio bus boards, that are designed to go with this system. As well as promising a strong and regulated flow of power, they are designed to be very robust, should your system develop a fault. Thanks to three nice bright LEDs, mounted on each board, these will flicker should a problem develop, allowing you to reach for the off switch before any permanent damage is done.

Another very similar system, in concept, is 4MS Row Power. Similar in design to the Tiptop uZeus and Zeus, this system also has the ability to connect from one power panel to the next, reducing the possibility of earth hum issues. For the slightly more adventurous, Synthrotek make a power kit which you can build from →

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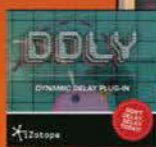
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For the slightly more adventurous, Synthrotek makes a power kit, which you can build from scratch

Above: Pittsburgh Modular makes some of the best rack synths – feast your eyes on this system...

Left: The Pittsburgh Modular Cell 90 – expandable, cool aesthetics and a small footprint

→ scratch. Not for the faint hearted, Synthrotek's kit of components offers you everything you need to make your own DC power supply, from the ground upwards. Also reputed to be of good quality, and if you don't feel like getting the soldering iron out, you can always buy it pre-assembled.

Loading bus boards

Whether you ultimately decide to look at an AC or a DC system, you will need at least one 'bus board' or 'distribution board' (described as 'distro boards' by some companies). Traditionally, bus boards are fitted to the base or rear of your case or cabinet, parallel to each row of modules, in order to distribute power to your modules. As such, it is normally the case that bus boards are securely fitted in place. It is always best to follow the manufacturer's advice, but methods will vary from the relatively easy double-sided sticky pads to more permanent fixings with screws. Be forewarned, power units and bus boards can get hot, so it is often advised that ventilation holes are in place, especially in larger systems, to allow for airflow around your chosen case or cabinet. Mounting bus boards with spacers, or standoffs, will help airflow around the boards, allowing them to stand proud of the case by a few millimetres. If in doubt, always follow the advice in the manual of your chosen product. It's worth getting it sorted from the outset, rather than taking everything out of your cabinet twice!

In the case of the Tiptop Audio uZeus, and some other small power head units, a 'flying bus' cable will

be used. As the description suggests, these cables are just that, and not rigid in design like their bus board counterparts, but they can be very convenient for smaller systems, and certainly excellent if you're working to a tight budget. They are also pretty fool-proof, and superb as an off-the-shelf option to get you started quickly.

The final part of the power equation is to consider the 'loading' of your system. The eagle-eyed will notice that while salivating over descriptions of modules, part of the technical specification will describe 'Power Usage' or 'Consumption', measured in Milliamps (ma). This is the measurement that is used to describe the amount of electrical current drawn by each module. Some units require more current than others, and your total module current consumption requirements cannot exceed the rating of your nominated power supply. Ultimately, this is pure mathematics! There are 1,000ma to 1 amp, so if you have 10 Eurorack modules,

which total 500ma consumption, you will need a power supply with a rating of 0.5 amps or more. The good news is that the manufacturers understand this, which is why most power supplies tend to be quite generous in rating. One point that you should be aware of when considering your next module purchase is that analogue modules generally require a small amount of current. However, digital modules often require far more – as much as five to 10 times more, depending on the module. Again, always refer to the manufacturer's instructions to be completely sure; and, if in doubt, fit a power supply with a higher rating to be safe.

In the next part (over the page), we look at modules and examine the bare minimum that you will need to get some useful noise, and consider the options for expanding this to a killer modular set-up. **MT**

POLARITY

One 'rooky' (and costly!) error that can easily be made is 'frying' a module by connecting the polarity to the bus board incorrectly. The Eurorack format requires that the negative connection, on the module and connected ribbon cable, is at the bottom. Many companies put a stripe (often red!) on the lower part of the cable to indicate the -12v connection (it's worth checking that the cable is connected to the module correctly too!). Despite this, it is still possible to connect the Eurorack plug upside-down if your bus boards have exposed pins – which many do – and in doing so may well cause a module to 'smoke' or 'fry'. Thankfully, this doesn't tend to be as serious as a fire, but it will render your module unusable, thanks to blown components on the module. Many companies know that this is indeed a common faux pas, and allow for components to 'blow', which can then be replaced; but it is a costly mistake, and one that can be avoided by checking carefully before throwing the power switch. Be aware – always look for the stripe!



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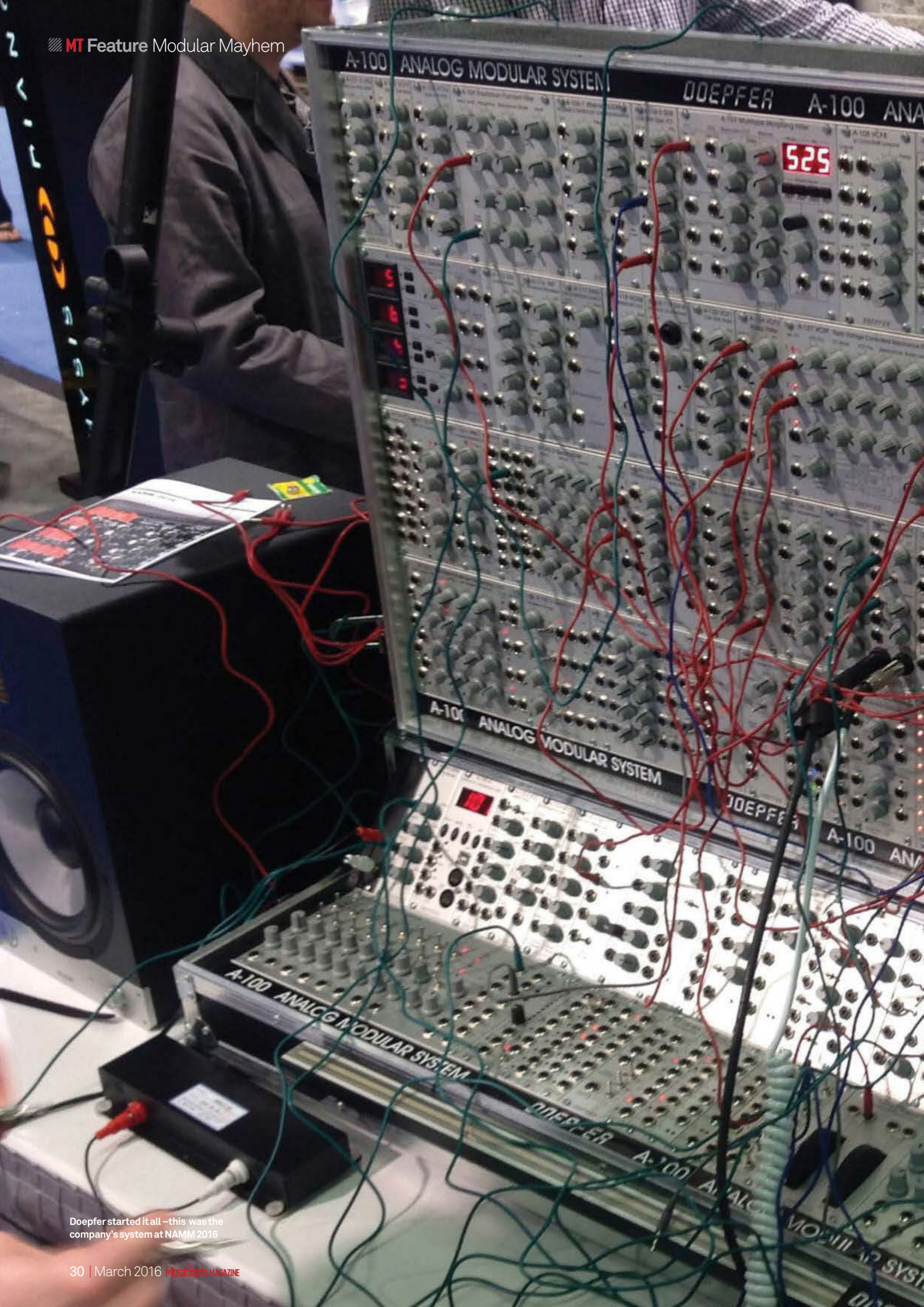
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Doepfer started it all – this was the company's system at NAMM 2016



MT Feature Modular Mayhem

Build Your Own **Eurorack** Modular Synthesizer system

**Part
two**

From cables to oscillators

Having kicked off our tutorial on how to build your own Eurorack system, **Dave Gale** turns his attention to the basic modules that you will need to make a palatable noise

Having given some consideration to your case or cabinet and the power that is installed within, it's now time to turn your attention to making bleepy noises.

It's probably fair to say that most modular users will want to start by building some form of basic synthesizer, which can be played from a keyboard or sequencer, whether the latter is something step-like or DAW-based. So a suggested starting place for a basic system will include an oscillator, a filter, an amplifier and an envelope.

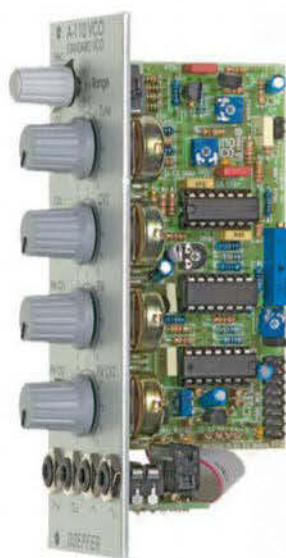
Within modular synths, there can be lots of signals sent in several directions. However, there are two signals that will be more predominant than any other, and they are control voltage (CV) and gate.

The CV part of the equation relates to a small DC voltage being sent down a cable. Imagine that as the voltage increases, it's the equivalent of turning a pot from left to right, on a module. In the case of pitch, turning the coarse tuning pot on an oscillator as described, the pitch would rise in a long glissando. Hence, if the voltage rises smoothly, the same effect would be heard, so it stands to reason that if you were to step the voltage of the pitch CV, you would start to hear the incremental notes of a scale. The Eurorack format is in tune with the most common CV to pitch format, and uses a principal of 1v per octave, so playing two notes, one after another, consisting of 1v and 2v, would result in notes that are one octave apart. Step them equally in between, and you would get a scale.

Music and synthesizer keyboards are quite simple beasts. You can almost consider basic synth keyboards to be very similar to a regular on/off light switch. In the early days of synth production, some keyboards made no bones about the fact that when you pressed down a key on a keyboard, one piece of wire would make contact with another piece of wire to



Above: The Doeffer A-110 is a good starting point oscillator: basic, cheaper than most, and excellent sounding, especially given the price



1. Making waves – the oscillator

The oscillator is the component on a synthesizer that produces the initial tone and timbre. Oscillators that come from the most common stable of synthesis, described as subtractive synthesis, employ waveforms, which are mostly rich in harmonic content. The tone you select will normally be depicted by a waveform, which is a visual representation of what the timbre would look like if viewed on an oscilloscope. For the most part, the usual suspects – such as saw tooth and square wave – will be there, but others – such as triangle and sine – might equally appear, the latter being less rich in harmonics.

There are so many oscillators on the market, it would be impossible to mention them all, but they extend from the basic single-waveform-at-a-time designs, up to modules with sub-oscillators in-built, or even modules that allow you to add harmonics to create your own waveforms. For the more 'classic' sound, you will want to start with an analogue oscillator, but don't dismiss pure digital oscillators on the basis of the 'D' word. They can sound huge, and very characterful as well.

SEQUENTIAL TRIGGERING

Having invested in your new Eurorack, funds might be running a little tight, so another cheap CV/gate sequencer to consider is the Korg SQ-1. This little brick is an excellent 'old skool' 16-step design, that will do the trick brilliantly, and allow for syncing to other devices via a dedicated Clock In and Out, which the Arturia Beatstep doesn't have in its standalone form.

The Korg SQ-1 is a pint-sized traditional sequencer, which packs a weighty punch and looks pretty cool too!



A starting place for a basic system includes an oscillator, filter, amplifier and envelope

create a circuit, thus producing a note. If you ever get your hands on a Sequential Circuits Pro One synth, just have a look at the underside of the keyboard – you will even see the wires and how they connect!

In the tradition of good old-fashioned electronics, this completion of a circuit is described as a gate, which turns on and off. When it's 'on', the circuit is completed and a note is produced! When it is off, well you can work that one out!

The principal of 'gating' is simple, but extended by the notion that as the circuit completes, a pulse can be sent in the direction of an envelope, which will then allow the user to contour some aspect of the timbre that you are creating. The most obvious part of this is the amplitude, also described as volume, but envelopes can also be sent in other directions to create changes in tonal colour.

If you are working to a budget, a good starting point with all things Eurorack is Doepfer, the company that arguably started it all. It has produced various analogue oscillators over the years, and the Standard Oscillator A-110 is well built, good sounding for the money, and will set you back just under £100. For this princely sum, you will get four waveforms, with CV control of pitch and CV control of the pulse width modulation (PWM) of your square wave. Moving up the price bracket, and for the pure analogue head, the AJH

Right: The Mutable Instruments Braids is an incredibly versatile digital oscillator, equipped with the ability to 'fold' waveforms and far more!

Most filters are based on designs that first appeared on the classic synthesizers of yesteryear

MiniMod VCO is exceptional. Based on the classic Moog Transistor Core design, as found in the MiniMoog Model D, this faithful recreation is rich in tonal colour, and very stable.

All the main players will have their own take on the traditional oscillator, and although analogue is more predominant, there are variants on the analogue theme. Digitally Controlled Oscillators (DCOs) are often analogue circuits under some form of digital control, so as well as the beauty of the analogue tone, you will also find stability in tuning.

Many companies also offer other forms of synthesis, such as wavetable or granular. The Studio Electronics Rainy Clamp-It and Harvestman Piston Honda Mk II are both digital oscillators that offer forms of wavetable synthesis. These modules can often be exploited without the use of a filter, as the rich tonal content is under full control, meaning that waveforms/wavetables can be brightened or filtered at source. Added to which, Wavetable modules are often capable of producing overtones that are way beyond the possibility of the humble VCO, as lovely as VCOs are. But then, this is the beauty of a Eurorack system; try things out and merge signals together.

A good example of an oscillator that is capable of many forms of waveform creation is the Mutable Instruments Braids. This module is something of a beast, offering everything from saw tooth right up to incredibly complex 'models' that combine oscillators for modulation and hard syncing. This could only really be possible in a digital unit, and the complexity of what can be achieved sonically is way beyond the realms of subtractive synthesis. However, you really do get the best of both worlds, as the basic and complex coexist within the same unit.

The chances are, you will eventually want to buy more than one oscillator. The more you have, the bigger the sound you can make; and of course, just like classic guitars, they all have their own sound and timbre. Start simple and build upwards, that way you will learn what works for you, without spending and wasting money.

2. Classic sweeps – the filter

Next on the list is the filter. Again, there are many designs out there, the most basic of which is the



classic low-pass filter. This device will filter out frequencies from your harmonically rich waveform, produced by your oscillator, and allow you to sweep through the frequencies, removing harmonics from the top down. In the case of the LPF, think of this as a lumberjack cutting down the main trunk of a tree, starting at the top and chopping sections as they go, leaving the stump at the bottom. The only difference with your LPF is that you can put the frequencies and harmonics back in, which is a tad more difficult to do with a tree!

Most filters are based on designs that first appeared on the classic synthesizers of yesteryear, so filter modules can contain the same circuitry as the MiniMoog, ARP 2600, SCI Prophet 5, Oberheim SEM, Roland TB-303, and even more obscure machines such as the EDP Wasp or the Polivoks. They all sound unique and have character, so you might want to consider what sort of music you might be producing and buy accordingly. If you like EDM, a classic 303-type filter will be sharp and resonant, whereas an ARP or Moog-style filter might be more forgiving, but stunning in other ways – it's all down to personal taste!

Studio Electronics has been on something of a crusade of late to bring classic filters to the market. Originally with the Boomstar Series, where all five modules were the same, except for the filter, these circuits are now available as separate modules. The names are largely self explanatory, but the 4075 and 5089 filters might need a little more explanation, making reference to the original circuits on which they were based. The 4075 is the classic ARP 2600 filter, whereas the 5089 is based on the original Moog filter.

Once again, Doepfer offers a broad and comprehensive palate within the filter market, but at a

The AJH MiniMod VCO is an exceptional oscillator based on the one found in the MiniMoog Model D



→ budget price point, with recreations of many of the classics. To the discerning ear, it is fair to say that you might notice a difference in quality, based on something which is twice the price, but they certainly do the job well enough.

Dave Smith Instruments surprised many last year by entering the Eurorack market with its first module, the DSM01. Built around the Curtis chip, this module offers the same sound that had been found in most of the synths that Smith has worked on, from the SCI Prophets up to his present-day machines, offering a Low Pass Resonant design.

All of the filters discussed so far have been very much of the low pass variety, but there are plenty of other filters available that will offer different options. The Pittsburgh Modular Filter has four different filter types in one module. Low pass, high pass, band pass and a variable filter are all available, and you can even use more than one at the same time, although cut-off and resonance controls will be mirrored through all four filters, if used simultaneously. This level of flexibility in one module is highly appealing, especially if your Eurorack space is at a premium.

With all things Eurorack, you will be forced to make your own decisions on what works best

3. Gating the amp – amplifiers and envelope generators

In many respects, the final two essential components in our quadruplet of modules are linked, as they are used mostly in conjunction. The Voltage Controlled Amplifier (VCA) is what one might expect; an amplification module that allows the signal to be increased to a level that will be usable with your other studio equipment, such as a mixer or audio interface, although there is an argument that it is not essential, depending on how you propose to use your modular. If you are intending to make only drones, you could get away without one, but in reality you will want to use your VCA in conjunction with an envelope, the purpose of this being to shape your sound dynamically.

Many VCAs have a 'playthrough' function, which is there purely to allow the signal to flow through without gating from the envelope, and is a useful starting point to check that you have an audio source available.

The envelope, or contour generator as Moog used to call it, can be deployed for a number of purposes, but by far the most common task is to shape the amplitude (volume) of a sound. This is done by connecting the CV output from the envelope to the CV input on your VCA, so in many respects you could consider this concept as an automated volume control, triggered every time a note is played. The most traditional concept is a four stage envelope, consisting of four phases that occur one after another, these being attack, decay, sustain and release, which gives rise to the acronym ADSR. There have been many variations on this theme over the years. Early synths often used less stages, and some synths from the



The Studio Electronics Modstar 3003. Can you see any clues as to which classic filter this module might be based upon?

eighties employed up to nine, but the humble ADSR envelope is certainly the most predominant at the present time. So given that the vast majority of envelopes are ADSR-based, what's the difference between brands and models? For many users, it's all down to how 'snappy' the envelope is, and this normally refers to the attack and decay phases, and the way that they interact at the front of a note. For percussive sounds, it is pretty essential to have a very quick attack phase with an equally quick decay phase, allowing the percussive timbres to be tight and very firmly on the front of the pulse or clock. If it is too snappy, the phases can be extended, but it is better to have this option than not. Of course, the same rationale can be applied to other sounds, but it is debatably more noticeable with percussive tones.

The Tiptop Audio Z4000 voltage-controlled envelope generator is renowned for its snappy sound, and also offers CV control of the four phases. It also takes the form of four very clear pots, which is something it shares with the Doepfer A-140 – a perfect module if you're on a budget.

If you fancy a different aesthetic form factor, then the Intellijel Dual ADSR boasts two envelopes on one panel, but with a look which is reminiscent of some Roland equipment, being slider-based rather than rotary-pot based.

Different again is the Pittsburgh Modular Envelope, which is switchable from a two-stage AD envelope to a three-stage ASR envelope, and also has triggering options that allow it to perform in a 'cycle' or repeat mode, meaning that it will produce multiple pulses and can be used in a similar way to an LFO (more on LFOs next month!).

Ultimately, and with all things Eurorack, you will be forced to make your own decisions on what works best for you – and in doing so, the voyage of discovery into Eurorack will continue!

4. Note sources and triggering

As previously mentioned, Eurorack systems work on a principal of control voltages (CV) to control pitch, and gate triggers to signify the beginning of every note. This very simple system is pretty infallible, and in the view of many all the better for it when it comes to timings.

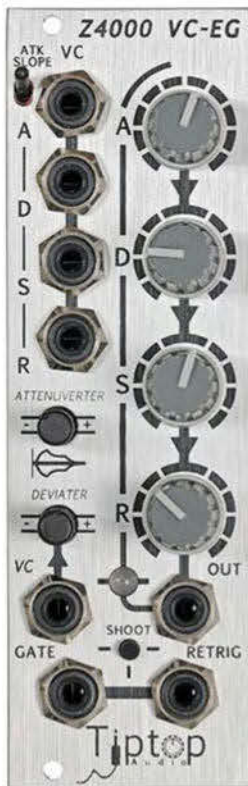
But there is a need, for many, to be able to interface with contemporary equipment. This essentially means either triggering from a computer-based DAW, or from a dedicated hardware sequencer. Whichever route is best for you will be dictated largely by how you want to use your system, and how you wish to integrate it into your studio setup.

If you wish to use it through a computer-based system, you will need a MIDI to CV/gate interface, many of which are available from all the main modular players. However, you could also consider Kenton Electronics, a company long established at providing MIDI to CV solutions, in both external and Eurorack modular formats.

If you would prefer a cost-effective option, which can be used as a sequencer and keyboard, the Arturia Beatstep is ideal. You can trigger notes from pads, and also set up basic 16-note sequences, directly from a dedicated piece of hardware.

DSI is one of MT's favourite synth companies and has entered the Eurorack market with the DSM-01





Left: The Tiptop Audio Z4000 has a huge amount of control available with every phase and CV control

Above: The Intellijel Dual ADSR has two envelopes on one panel, but with a look that's reminiscent of Roland equipment, being slider-based, rather than rotary-pot based

5. Patch time – cabling

The one further aspect of Eurorack that cannot be overlooked is that of cabling. The Eurorack form works on a principal of connecting units using 3.5mm mono-jack based cables, and not the stereo variety, as you might find on your mini-jack based headphones. Many companies make their own branded version of

Armed with **four units** and a **handful of cables**, it is now time to consider creating your **first patch**

cable, and a particular favourite of mine are the Nacza cables from Pittsburgh Modular, which are pretty tough and hard wearing, thanks to an exterior braid. You may also like to consider cables with plugs that are known as 'stackable'. This immediately allows a signal to move in more than one direction, by simply inserting a second cable on top of the first; very clever, but predictably stackable cables are more expensive, as the manufacturing costs are higher.

Armed with your four units and a handful of cables, it is now time to consider creating your first patch, so we will start at the front of the signal chain, with the oscillator.

Despite what you might think initially, every oscillator is generally in a state where it is producing a tone at all times! If it is switched on, it is producing a tone. The only point that prevents you from hearing it is whether it is switched on and plugged into a mixer or similar. So if you were to take your oscillator output (probably indicated by one of the little waveform icons on most modules) and plug it into the audio in on the

VCA (see fig. 1), you would hear a noise, providing of course that your VCA has the playthrough function mentioned earlier, in which case there should be a pot which will act as a volume control somewhere on the VCA. It's worth mentioning that the VCA output must in turn be connected to an input on your mixer or audio interface. Keep the volume low to start with, to prevent any damage to your equipment.

At this point, you will notice that the tone you are hearing will probably sound quite raw, and certainly if it is a saw or square wave tone, it should do – and this is where the next stage enters the equation, in the shape of the filter. The tone being generated will also most likely be quite low in pitch (frequency), because at this stage we are yet to connect the oscillator to a pitch CV source, and by default oscillators will produce a low tone. If the tone produced is not low in frequency, don't worry! It probably means that the pitch/frequency pot on the oscillator is set in a high position, in which case turn it and you should hear the tone move in pitch.

It's now time to reach for another cable, as we will insert the filter into the signal path (fig.2). By disconnecting the cable that is currently inputting to the VCA, this can be re-routed to the filter input. The additional cable can now run from the filter output to the VCA input, as before. Some filters do not have an output labelled as such, instead naming the filter output as the flavour of filter, so you might see 'low pass' instead of 'output'. If you are not hearing noise at this point, the chances are your filter is filtering out the entire range of the oscillator tone, so give the cut-off control a tweak and you should hear something. If the resonance is turned up, you won't be able to resist wildly turning the cut-off frequency, but it's best to refrain from shouting 'aceeee' at this point (if you are too young to know what we are talking about here, ask your parents).

So far, we have produced something drone-like, but now it's time to connect the envelope to the VCA, in order to gate the sound and create a dynamic shape (fig. 3). Take the envelope output and connect it to the



MIDI TO CV CONVERTERS

If you are pretty sure that you wish to use your DAW as a means to trigger your Eurorack, it is worth considering a number of MIDI to CV/gate devices. Apart from Kenton, which almost invented the idea of MIDI to CV conversion, Doepfer makes some very cost-effective solutions for under £100. However, for more advanced use, the Pittsburgh MIDI 3 or Mutable Instruments Yarns allow for two or four CV/gate streams respectively, controlled from your DAW. The Pittsburgh also offers clock division in the same module, which could kill two birds with one stone!



Far left: The Kenton Electronics Modular Solo is equipped with the basic MIDI to CV/gate conversion, and the ability to route further CVs to other units, for automated control of parameters such as filter cut-off.

Left: The Pittsburgh Modular MIDI 3 – not only will this module convert MIDI to CV/gate, it can also operate in a duophonic mode and even arpeggiate!



There are some great modern solutions to triggering CV/gate, the Beatstep Pro from Arturia being one of them

Fig 1.

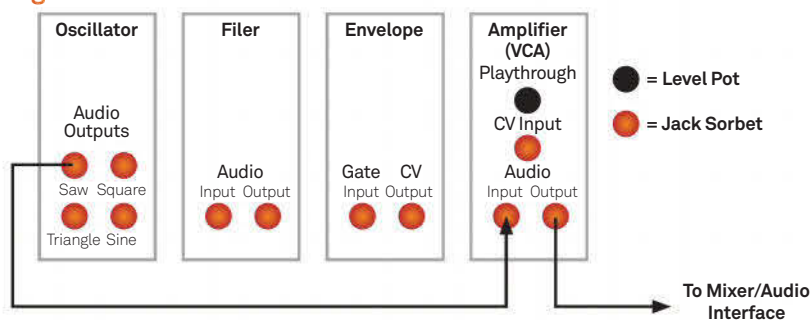


Fig 2.

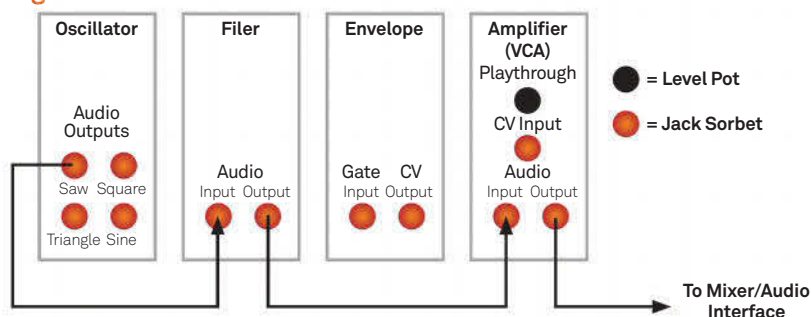
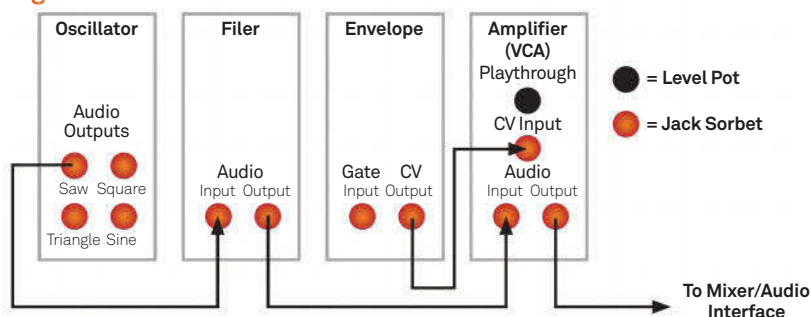


Fig 3.



→ CV input on the VCA. In order to hear any change in your sound at this point, bearing in mind that you are probably still hearing a drone, you will need to decrease your 'playthrough' volume on the VCA completely. This should take your volume down to silence.

Before you are able to start triggering notes, you will also need to connect the gate output on whatever your chosen sequencer or MIDI to CV interface is to the Gate Input on your envelope. The CV and Gate outputs on sequencers and MIDI to CV converter modules often reside next to each other, so you shouldn't have to stray too far to locate them.

You will also probably find a CV input amount control on the VCA, which you will need to increase, and doing so should result in you hearing your note in its full amplitude contoured sense, every time you trigger it from your source keyboard or sequencer. Adjust your ADSR envelope settings, and you should start to hear a change in the various phases of the amplitude of the note. Now, you're ready to play something musical, whether it be automated or manually played.

Beyond basics

Armed with these four modules, you have the very essence of a basic subtractive synthesizer, and what comes next is all about modulating sources to create even more interesting tonal colours. However, for the moment, you could consider sending your envelope output to the cut-off CV control of your filter, as well as the VCA. In order to 'split' this signal, you will need either stackable cables or a small Eurorack patchbay, such as the Pittsburgh Modular Multiple, which is a very cheap and incredibly useful unit. Once split, you can send your envelope to the filter as well, and create that classic snappy filter effect that you often want on a great bass sound.

Other than this, you may well have other mysterious jack sockets on your modules. Have a go and plug them up and see what they do! It's highly unlikely that

you will damage anything, so just noodle around and see what comes out! That's what it's all about!

Next time

Next month, we will explore more modules with a view to modulating or effecting the basic sounds you have created here. This is where the fun really starts, so reach for a clutch of cables, and get ready to make that unique killer patch! **MT**

Cabling can be simple – as shown here with two new Vermona modules – but it is important and often overlooked.



CABLES TO IMPRESS

You would think that there would be very little to get excited about with cables, but thanks to UTOpb, you can now purchase cables with LEDs built in, so every time a gate trigger occurs, the cable illuminates! Very cool! For further information, see www.utopb.com



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Granular synthesis with Alchemy

Delving deep into Alchemy's granular synthesis engine can yield some unique-sounding textures. **Mark Cousins** unlocks the power of the grain.

Programming your own sounds on Alchemy is a rewarding process, with a wealth of source options, modulation routings, filter types, FX modules and so on, all to be explored. Some of Alchemy's more unique sonic traits are born from its ability to work with sample-based sources, using tools like additive, spectral and granular synthesis. For those that haven't explored these sound design techniques, it can be little overwhelming to know where to begin, both from a creative standpoint, but also in relation



We'll explore the basics of granular synthesis and the applications of the technology

to the range of new parameters – like Grain Density, RTime and so on – that you'll start to encounter.

In this workshop we'll take a look at one of Alchemy's advanced sound design engines – the Granular module. As well as understanding the basics of granular synthesis, we'll also explore some applications of the technology, as well as how it integrates with Alchemy's more traditional synthesis tools, like filters, step sequencers and LFOs.

As with the Additive, Spectral and Formant modules, Alchemy's Granular engine is designed to work with sample-based sources. To begin a granular patch in Alchemy, therefore, you'll need to import an audio file into the corresponding Source (A, B, C or D). You can access the browser via the drop-down menu under the Source selection, either loading WAV files from Alchemy's own sound library (many of which are designed to suit granular applications) or from a source of your own choosing, simply

by dragging-and-dropping audio files into the Drop Zone.

Before you import the sample, though, you need to choose which Analysis mode you intend to work with, which, in turn, relates to your choice of sound engine. In the case of granular synthesis, we can either pick the Sampler or Granular Analysis Mode (found in the bottom left-hand corner of the interface) before we press the Import button. In effect, the two modes are interchangeable, so that we can freely move between conventional sample-based playback and that of granular synthesis.

The reasons for choosing either the Granular engine or conventional sample-based playback are apparent when you move between the two modes. With sample-based playback, the pitch and the duration of the sample are interlinked – in other words, as we raise the pitch, the duration becomes shorter and vice versa. Granular, on the other hand, uses a series of sound grains (short looped portions of the audio file, in other words) to build the output, ultimately leading to pitch and duration of the sound being completely independent of one another.

Two of the most important parameters for a Granular source are Position and Speed. Speed, of course, can be freely changed without any affect on pitch, even going to an extreme where the sound appears 'frozen' in time. In the case of Speed being at its slowest setting, Position then becomes a means

EXS24 IMPORT

For those that feel restricted by the synthesis possibilities offered by the EXS24, it's reassuring to note that Alchemy features an EXS24 import option. You can access the EXS24 import in the same way that you import conventional audio files. Simply browse the corresponding EXS24 instrument, and press the Import button. As with audio files, you'll want to select the correct analysis method, either using the Sampler option; if you largely interested in combing the samples with VA waveforms and filters, or the Granular, Additive or Spectral modules; if you want you want to be more sonically creative. Note that the importing process isn't 100% accurate to the original instrument, as Alchemy needs to consolidate velocity layers and so on. For simple instruments, though, you should find the import faithful to original mapping.



MT Step-by-Step Alchemy granular synthesis

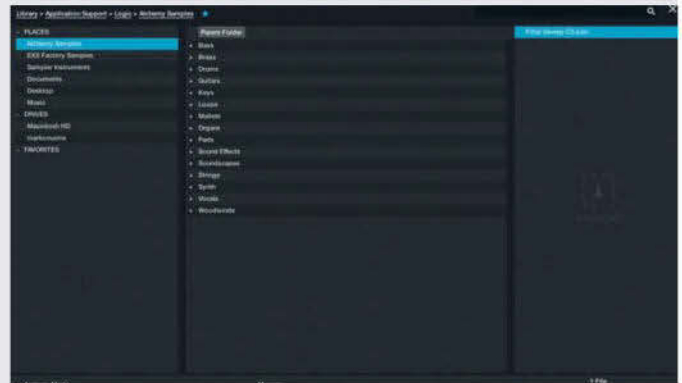
- 01** Start from an initialized patch (File>Clear, from Alchemy's own internal menu). Go to the Advanced tab and pick Import Audio from the drop-down menu that accompanies the Source selection, which will currently be in its default Saw setting.



- 03** The filter sweep has been imported as a conventional sample, with just a Reverse control and Volume parameter. Playing the sample up and down the keyboard results in the playback being shortened and lengthened accordingly, as well as changing in pitch.



- 05** With the sweep held in its Granular form, we gain new flexibility over the playback of the sample data. Reducing speed slows the progression through the sweep, stepping through the grains slower without affecting the pitch of the playback.



- 02** You can import a range of sample material into Alchemy, including its a diverse collection of sample data. We're pulling the Filter Sweep C3 (in our Logic project) file over to the Dropzone, selecting Sample as the Analysis Mode and pressing Import.



- 04** Now move over to the Granular tab and activate the Granular mode. With Granular active, Alchemy plays the audio file as a series of Grains. Notice now that the duration of the filter sweep is the same wherever you play on the keyboard.



- 06** Taking the granular concept to an extreme, we can reduce Speed to zero, creating an effect similar to 'freezing' time. With the Speed at zero, try moving the Position control to hear the sound slowly sweep through the harmonic spectrum.

of stepping through the sample data, much in the same way you might step through a wavetable. Add modulation to the Position control – either in the form of an LFO, envelope generator or step sequencer – and the wavetable-like qualities are complete, creating shimmering 'granular' pads, for example, or radical timbral changes with an LFO set to a sample-and-hold waveshape.

To understand the sound of granular synthesis, it's worth adjusting the grain parameters to hear the process. For example, Density and Grain Size are two fundamentally

important parameters in the overall granular effect. To hear a single grain, reduce the Density to its lowest setting and then adjust the Size parameter. With settings around 140-230ms, you'll hear an effect similar to an audio gate being opened and closed, playing back short snippets of audio based on the Speed and Position parameters. As you move through the audio file, therefore, the grain 'window' changes, almost like a series of sonic snapshots.

Rather than using just a single grain, most granular sounds use a number of simultaneous grains to produce a →

→ smooth and continuous output. Even so, you'll want to trade-off the Grain Density and Size to get the results you're after. A more 'textural' application of granular synthesis (maybe using a noisy, almost percussive sound source) might favour low-density settings and a relatively large grain size. If you're interested in smooth granular pads - where the sounds morphs between different harmonic states - then you'll want to increase the grain density and adjust the size to taste.

Once you understand the mechanics behind granular synthesis, the musical applications soon start to become apparent. Ideally, the best audio files for granular synthesis involve a sound that clearly changes over time, rather than sounding relatively static. As one of the examples illustrates in the walkthrough, you can achieve some interesting results using synth sweeps, creating granular twists on many classic subtractive sounds. You can also get some great results using music phrases as granular sources, →

MT Step-by-Step Alchemy granular synthesis (cont'd)



07 The Density and Size of the grains can have a big effect on the sonic output of Alchemy. Try reducing Density to zero to hear just a single grain, which can be varied, using the Size parameter, from 2 to 230ms.



08 Coarse Size and Density settings can be effective (especially on textural sample data), but if you're seeking a smoother overall sound you'll want to use a larger amount of grains, via the Density setting, and grain sizes greater than 140ms.



09 The RTIME control adds small time variables between each grain. Try reducing RTIME to its lowest setting to see how sterile the granular engine can sound without these variations. On the whole, 3% seems a good default.



10 As the name suggests, RPan introduces random panning artefacts into the grain distribution, and are a great way of adding stereo information to a mono source. Hear the effect in action using a low density/large size setting.



11 Having understood the basics, let's take a look at two granular treatments - a granular pad sound and then a granular sequence effect. Initialize the sound and import the Granular Piano C3 sample that's residing in our Logic project.



12 Rather than stepping through the sound in a conventional fashion, route the LFO through to the Position parameters and set speed to 0. Reduce to the depth so that the sound 'shimmers' around a portion of the piano sample.

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RME

- ➔ especially ethnic instruments, which can have erratic or unusual timbral changes over their duration.

Once you've set up the basics of your granular texture, it's then a case of using traditional subtractive tools to enhance the effect you're trying to achieve – whether it's adding animation to the grain movement using LFOs and Envelopes, or using signal processing tools like filters to accentuate the timbral colour you're after. For example, if you want a warmer grain sound

with some of the edges smoothed off, pick a low-pass filter, or if you want to accentuate the texture of the grains, try using a high-pass filter. Ultimately, the more you play with granular synthesis, the more you'll appreciate the extra set of tonal colours it delivers. **MT** This tutorial is endorsed by Point Blank. With courses in London, online and now in LA, Point Blank is the Global Music School. You can study sound to picture on their Music Production Diploma courses, with pro industry tutors.

MT Step-by-Step Alchemy granular synthesis (cont'd)



- 13** To add some warmth and further interest to the pad sound, we've used a second LFO to subtly modulate the tuning (Fine). You could also edit the amplifier's AHDSR to have a more graduated attack and decay so that it's more pad-like.



- 15** Open up another instance of Alchemy (importing the same sample) to explore another sound. We're using the step sequencer to modulate position, rather than the LFO. The result is a sound that appears to jump between different portions of the audio.



- 17** Routing LFO1 through to the main Volume control lets us shape the amplitude for each step of the sequence. Use the Ramp Down shape options and set its Rate to 1/16ths (assuming you have the Sync option enabled).



- 14** To complete the patch (which sounds best an octave above its original pitch), try adding a 2-pole low-pass filter and a touch of delay. Also experiment with high-pass filtering, which is useful where you want the results to have more texture.



- 16** To exaggerate the movement, we've also routed the sequencer through to the LP2 MG filter, with a medium amount of release and small amount of drive for extra body. As the filter mirrors the granular shifts, it helps define the timbral movement.



- 18** It's worth remembering that the FX section can also be modulated. Rather than reverb and delay being static effects, therefore, we've used the same step sequencer to modulate the FX mix, so that the higher valued steps have more effect.

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Pitch and transposition in Ableton Live

In the first of a new series of in depth tutorials for Ableton Live, **Martin Delaney** shows you where to find some all-important controls relating to pitch and transposition for audio and MIDI, and explains how to use them...

Today, we're talking about pitch and transposition, and how to manipulate them in Ableton Live. But we're not talking about the musical theory involved, as much as looking at the Live tools that let us interact with these important musical principles.

With some people, there's still an idea that Live is weak at MIDI programming – and it is, if you're looking for the familiar tools from Cubase or Logic. Ableton Live isn't so much about MIDI programming in a way you'd recognise from programming with other DAWs – it's more about using dynamic control, automation and MIDI effects. And because... well, because Live is Live, we can exercise a huge amount of real-time control with audio samples as well, just as easily as working with MIDI. Because these tools let us be more spontaneous, and can be accessed mostly through hardware controllers, rather than being based on drawing with a mouse, they are equally useful for improvisation, performance and composition.

Live's transposition and pitch controls are primarily creative tools, meaning you use them to create noticeable sonic effects, with the MIDI plug-ins and within the software instruments. However, they also serve very practical purposes, such as the new Tuner device, and the way that the Pitch MIDI effect device can help you to shift the root of a song to better fit with a certain vocalist's range, for example.

As with project tempo changes, transposing an audio clip is one of the times when you can most hear the

difference between how the different warp modes behave. Try it with that audio drum loop in track 1 of our example set – combine it with project tempo changes to get the full benefit! The Transpose control in the Sample box is MIDI-assignable – once assigned, it applies to the currently selected clip or group of clips.

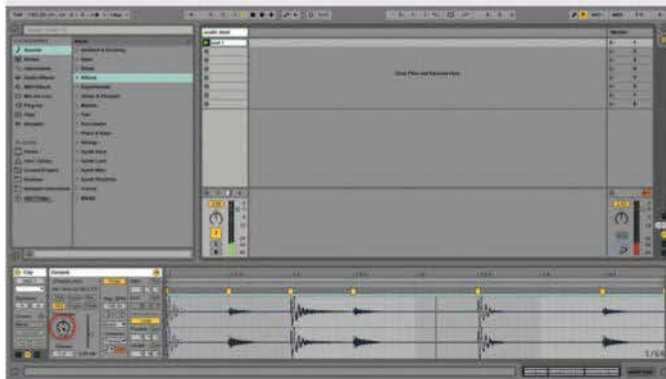
There are various ways we can create harmonies in Live – instrument racks, multiple copies of audio clips across a scene or in a track group, the Chord MIDI effect device or the Apple AU Pitch device (put it on a Return track for the coolest harmony mix options). If I want more involved harmonies, I'll use iZotope's Nectar 2, which is a great plug-in, designed primarily for vocals, but fun with instruments too! On the hardware front, the Eventide PitchFactor is a very cool and not too expensive stompbox-style harmoniser if you want something more physical.

The Re-Pitch Warp mode is great for song transitions – much as I usually mask BPM changes in song transitions, sometimes it's fun to do the opposite and have a few choice samples that pitch up as you increase tempo between songs.

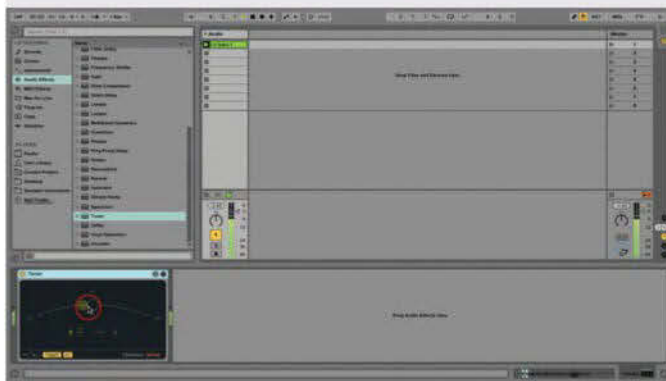
TRANSPPOSITION EXPLAINED

There are transposition controls throughout Live, and this applies to audio samples as much as MIDI parts and software instruments. Transposition is what we call it when we change the pitch of a part, or an entire song, usually in semitones. Furthermore, we have the ability, in some instances, to change pitch in smaller divisions, namely cents – a cent is 1/100th of a semitone. In Live, we'd probably use this kind of adjustment to fine-tune the pitch of samples from different sources, or perhaps to simulate the less consistent pitch of vintage synths.

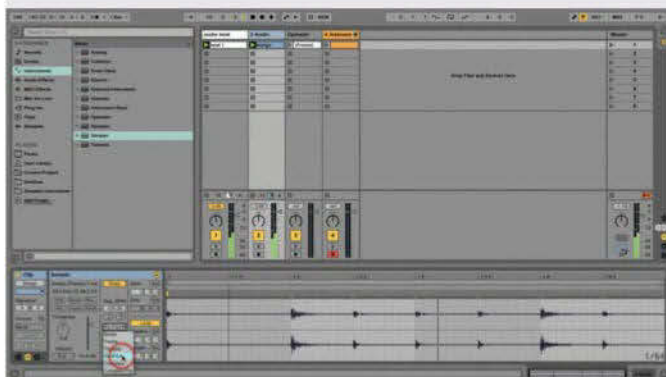


MT Step-by-Step Explore Live's pitch effects

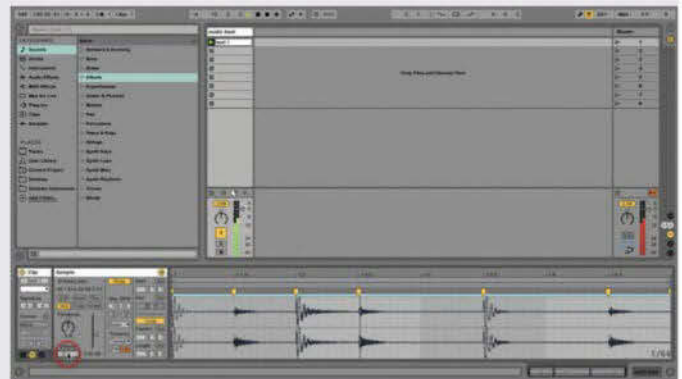
01 Open our example set. Double-click the audio clip 'beat 1'. Use the Transpose control to shift the beat up and then down. This is also where you'll better hear the warp modes in action.



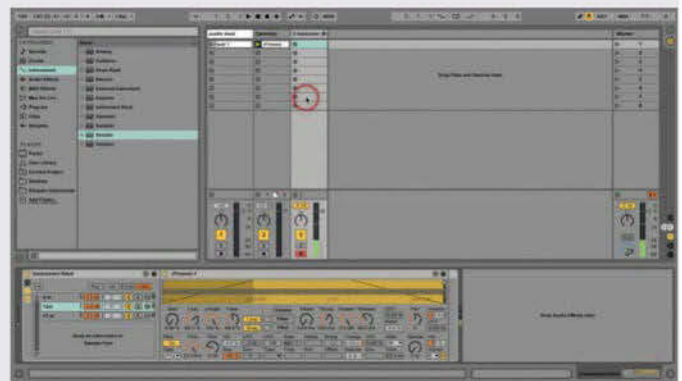
03 The Tuner device is useful... tune your samples with it, tune your guitar, tune your bass, or whatever other stringed instrument you have. Live should've had this 10 years ago – better late than never!



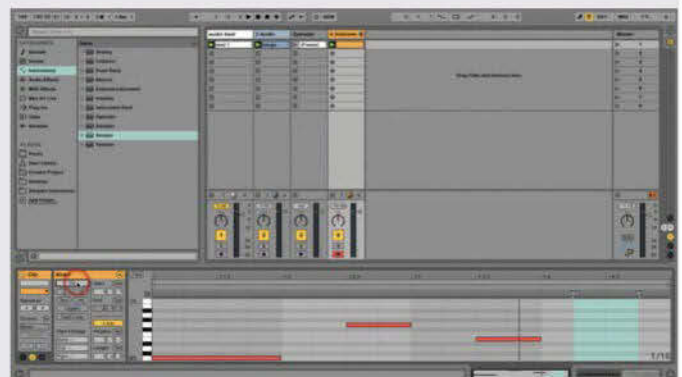
05 Live's Re-Pitch Warp mode provides vinyl-style effects. Clips set to Re-Pitch change duration with project tempo changes, but also deviate upwards or downwards from their original pitch. It's a cool effect!



02 Below the Transpose control is a box where you can enter cent values to tweak the tuning of samples to better fit together. Use this in conjunction with Live's Tuner to finesse your sample pitches.



04 Create harmonies by copying a clip across different tracks, transposing them all differently and launching the scene. Or create a rack with multiple Simplers containing the same sample, pitch them differently and play from a keyboard.



06 Live's MIDI Notes box has a Transpose control too – type note names, or a transposition value in semitones, or just click and drag up or down to re-pitch the currently selected notes.

As far as Live's instruments go, the Operator synth is a perfect example of how pitch and transposition controls can be used creatively. Each oscillator (or operator) has Coarse and Fine tuning controls – Coarse generally providing more pleasing sounds, while Fine produces more edgy 'inharmonic' sounds. These two controls on each oscillator are enough to make a big difference to the sound of Operator. Beyond that, there's a pitch envelope that globally affects all of Operator's output (this defaults to 'off'), and the Spread control, which thickens Operator's sound by doubling and slightly detuning the output. Then

there's the Transpose control, which will globally shift notes playing through Operator in semitones to + or - four octaves.

As usual with Live, all of these controls can be automated, with track automation or clip envelopes – I still like to use Impulse, Live's original drum sample player, and I like to automate pitch changes for each of the eight sample slots. Operator and Simpler are just two of the instruments that feature pitch and transposition-related controls. Analog, for example, has independent octave, semitone and cent tunings for each oscillator, which could

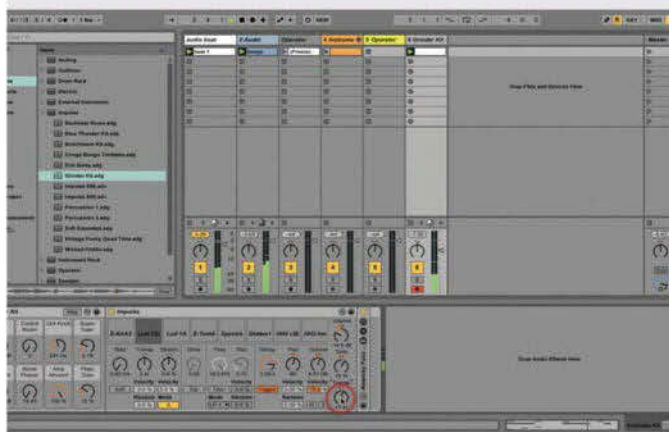
MT Step-by-Step Explore Live's pitch effects (cont'd)



- 07** The Pitch MIDI Effect Device lets you transpose MIDI notes in semitones, and to filter out notes beyond a specified range. Try it on track 3 in our set – pitch that up 12 semitones (one octave).



- 09** By adding Pitch to every track, then assigning the controls on each one to the same MIDI controller, you could transpose your entire song; useful if you're having problems finding a suitable pitch for vocals.



- 11** Live's venerable Impulse sample player has its fair share of pitch controls. Each of the eight samples can be transposed, and the entire kit can be transposed simultaneously. Use clip envelopes to automate if required!



- 08** The Scale effect forces incoming notes into the defined scale. By combining this with Pitch we can change the root note and scale of a track in real time without doing any programming within the clips.



- 10** Operator is full of pitch fun. There's the global Transpose control – to quickly transpose your synth parts in semitones; the pitch envelopes; and fine tuning for the oscillators/operators using the Coarse and Fine controls.



- 12** Similarly, you'll find pitch-related controls in every Live instrument, to varying degrees. Analog, for example, has independent octave, semitone and cent tunings for each oscillator, which could help create some vintage synth pitch wonk!

→ help you create some vintage synth pitch wonk. Using note pitch to trigger specific instrument sounds within a rack is very useful, especially for 'real' keyboard players – I know a few touring musicians who use this type of setup. What makes it extra cool is that, of course, you can build in an element of cross-fading between sounds as well, so it

doesn't have to be strictly one sound or the other (drum racks have a kind of comparable function, where incoming notes can be remapped to other notes). If you really like to mess around with racks, create an instrument rack with 128 chains, each containing a different instrument sound. Right-click in the Key Zone Editor, and choose Distribute →



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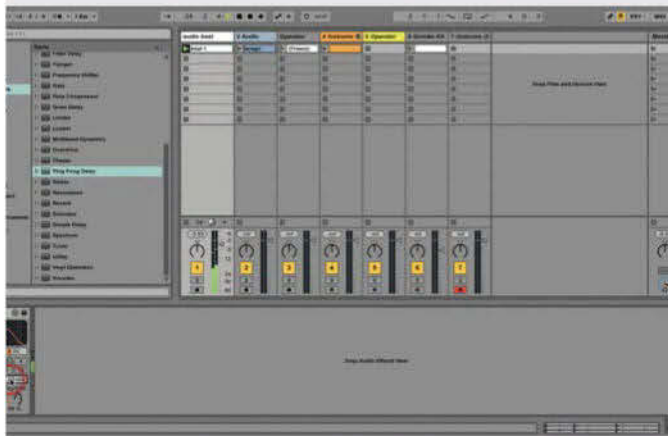
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MT Step-by-Step Explore Live's pitch effects (cont'd)



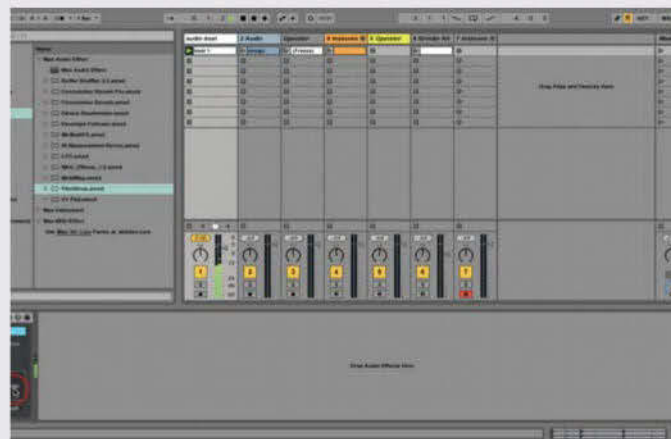
- 13** When you're using instrument racks, you can use pitch – the range of notes you're playing on the keyboard – to determine which chain in the rack plays at any given time, creating splits or zones.



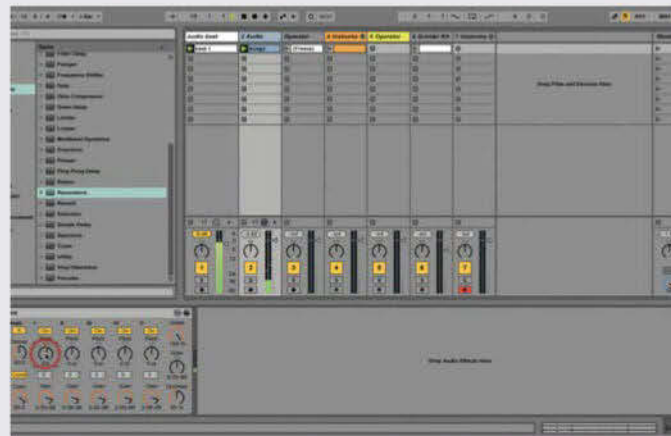
- 15** You can get some interesting pitch effects with Ping Pong Delay. Load Ping Pong Delay and right-click on it, choosing Repitch. Now as you change delay time, the delay repeats will change pitch.



- 17** Live's Frequency Shifter isn't strictly a harmonizer. It changes the frequency of the signal (and pitch=frequency), offsetting the pitch in Hz. You're getting into flanger sounds and off-kilter craziness.



- 14** One of the default Max For Live audio effects is Pitch Drop, which emulates the effect of a vinyl record stopping. Set the drop duration and trigger the drop by MIDI control or a mouse click.



- 16** If you're using the Resonators effect, tune it to the correct pitch for your song using the Note control. This sounds more musical than leaving it at the default value. Try it on track 2 – the bongos.



- 18** OS X has built-in Audio Unit effects, such as AUPitch. You have to dial up a pitch offset in cents. You might need to lower the quality setting to avoid latency, too.

➔ **Ranges Equally.** Now you have a separate zone for each chain in the rack – and each sound will be triggered by a different note. Now you can start playing your keyboard, and get to work with the various MIDI effect devices, like Arpeggiator, to keep loading different sounds for each note that plays. I like this and, of course, it'll work with third-party instruments and effects as well.

That's all we have time for this month, although there are other places in Live where you'll see 'Pitch' and 'Transpose' controls... I hope this helps you appreciate how many different ways we can affect pitch of audio and MIDI components within Live, without ever drawing in a note or a MIDI cc if we don't want to. Put all these together to enhance your live performances and productions... **MT**



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Technique Mastering Part 5

Setting levels and limiting in mastering

To many people, making the mix loud is the whole point of mastering, but to others it's more contentious.

Mike Hillier tries to hit the sweet spot

This month, we're using the track *Foreign Waters* - the title track from the *Foreign Waters* EP by Emily Mae Winters, mixed by Ben Walker. Find out more about Emily Mae Winters at www.emilymaewinters.com.

With EQ, compression and any other processing done, the final signal processing to be applied to the audio in mastering is loudness and level control. Finding the right level for your masters isn't simply a case of adding a limiter and squashing it until there are no dynamics left, but about finding the right balance between dynamics and loudness, comparing the



transients are reaching and must be kept below 0dB or you risk digital clipping distortion spoiling your master. You can, of course, keep the peaks below 0dB with a limiter, and many mastering engineers prefer to set the limiter to -1dB to leave a little headroom in the final master for any conversion processes further down the line, such as the inevitable conversion to mp3.

RMS matching isn't perfect, but if your frequency spectrum is well balanced, and the vocal is mixed into the track at a similar level this should be enough. If the RMS is matched and your mix still doesn't sound as loud, then it is likely that the master isn't well balanced across the frequency spectrum and an EQ or multi-band compressor can help to bring it back under control.

Most mastering engineers will employ a number of meters for measuring the loudness, including dedicated peak and RMS meters, over-sampling meters, VU meters and dynamics meters, which measure the peak-to-RMS ratio. **MT**

The two key figures when getting the level right are the Peak level and the RMS

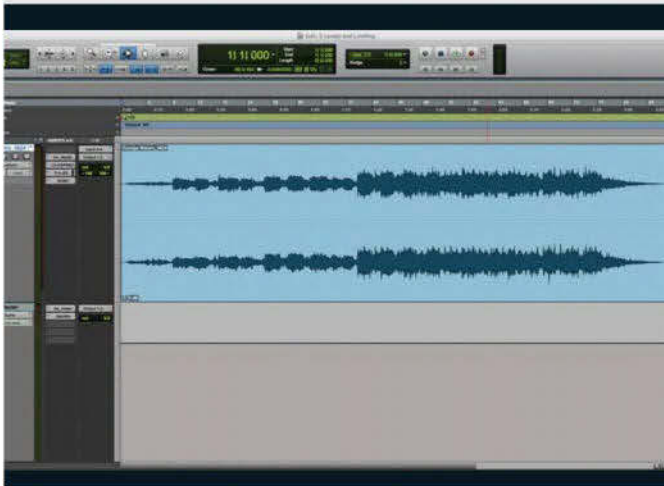
track with others on the album/EP you are working on and others in a similar genre. While the simplest way to turn up a master is to use a brickwall limiter at the end of the chain, more careful use of EQ, compression and even harmonic excitation can produce level boosts, and will often do so without squashing dynamics.

The two key figures to pay attention to when getting the level right are the Peak level and the RMS, the difference between these two being an approximation of the amount of dynamic left in the master. The RMS is the average loudness of the master, and so it is this figure which gives you an idea of how your master will compare to others when played side-by-side. To get your tracks to sound similar in level to professionally mastered material, try to match the RMS levels. The peak level is an indication of where the

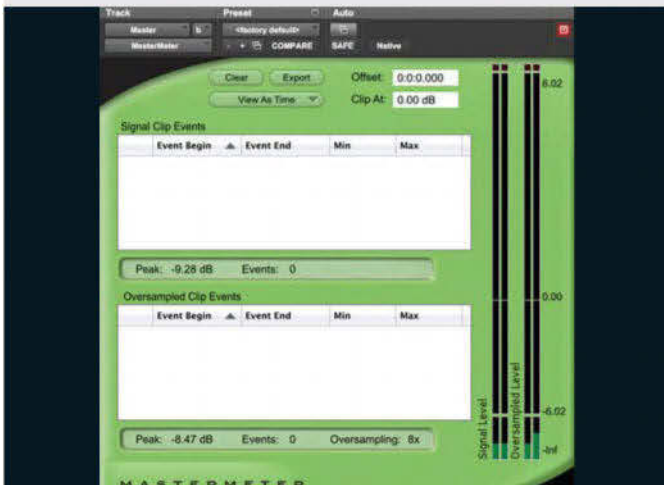
COMPARE AND CONTRAST

Be sure to compare your master with other music to make sure your track sounds similar in terms of overall loudness, the frequency content and – most importantly – the vocal.



MT Step-by-Step Get the levels right

01 *Foreign Waters* is built around a picked guitar part and vocal, with drums, bass and strings embellishing the arrangement in the second half of the track.

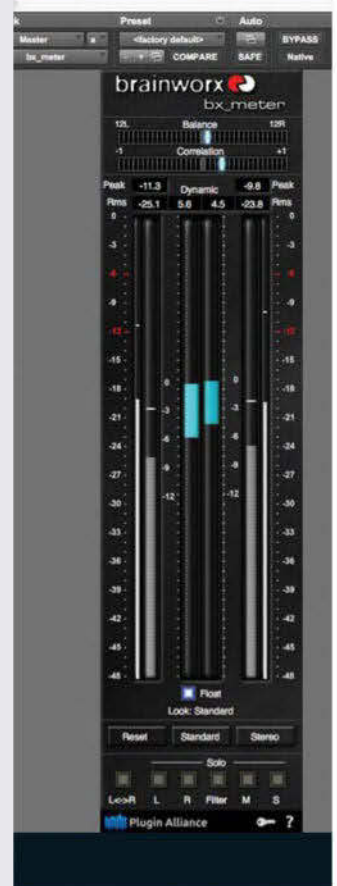


04 We're also going to add an instance of TL Mastermeter. This meter will show any potential intersample peaks, which can cause problems on inferior playback systems and when converting to mp3.



05 We've got around 3.5dB of headroom at the minute, so we could simply turn the track up by 3.5dB to get more level. But this would risk inter-sample distortion, and we want to try to get a little more apparent loudness out of the master than just the 3dB of clean gain available to us.

06 We'll start by adding a brickwall limiter. The UAD Precision Limiter has a fixed threshold at 0dB, and limiting is applied by pushing the level up with the input knob. We know we have 3.5dB of headroom available, so pushing the input up by anything less than this will just give us clean unlimited gain, while more than this will result in some limiting.



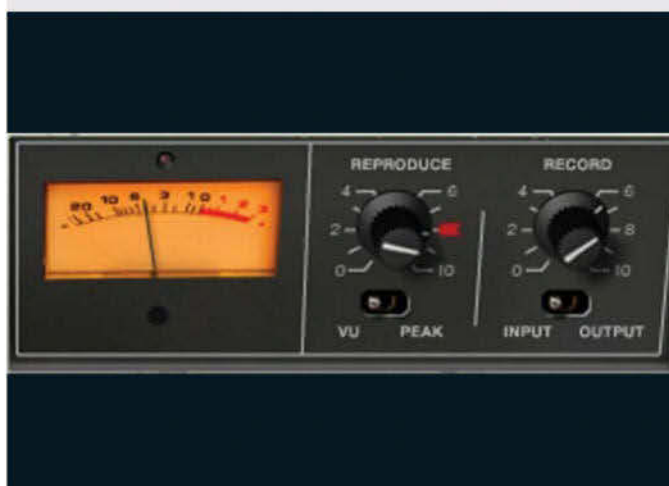
03 We're going to add a couple of meters to the master buss to help us get an idea of the overall levels that we're reaching. We're using the Brainworx bx_meter here to meter both Peak and RMS levels, and this also gives a feedback of the ratio between these two figures.



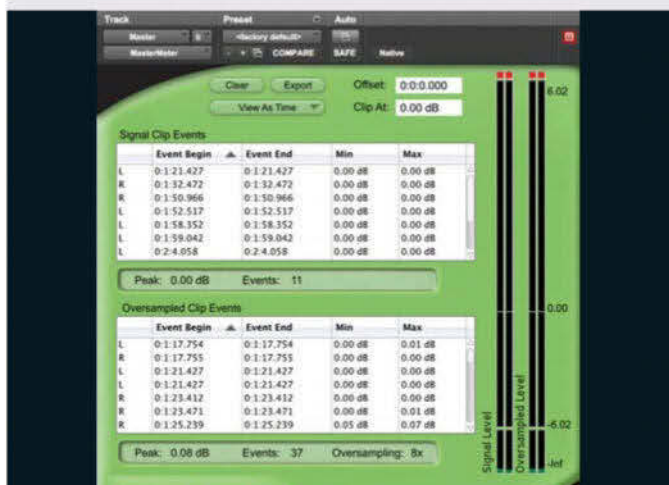
→ MT Step-by-Step Get the levels right



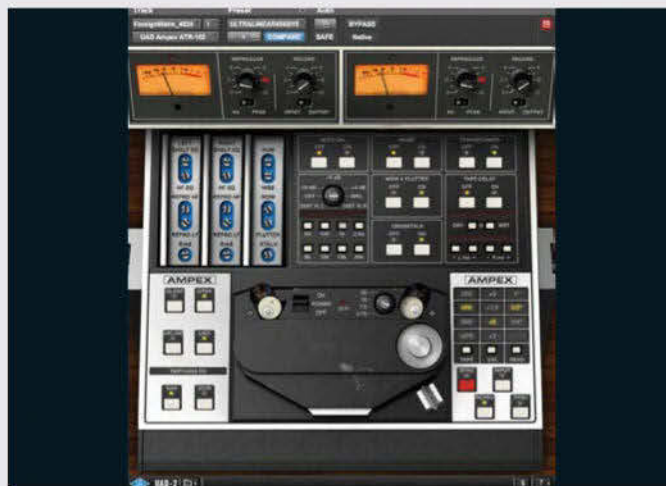
07 With the input dial up around 5dB, the limiter is still only tickling the peaks of the master, and we could quite easily push this up another dB or two without much damage to the dynamics of the track.



09 We can drive the tape input and output stages to push the limiter a little harder, while also getting a little extra colour and saturation off the tape, which will help to add to the perceived loudness of the master.



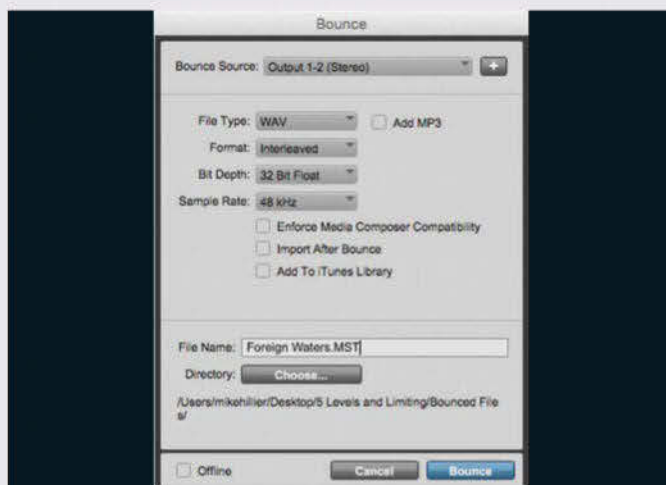
11 With the output of the limiter set to 0dB, there is a chance we will get inter-sampling distortion, so check the TL Mastermeter. If you are getting any clipping, turn the output stage of your limiter down until the meter ceases to report inter-sample clipping.



08 Instead of getting all our gain from the Precision Limiter, we're going to dial the Input knob back down to around 2dB and add an instance of the UAD ATR-102 tape machine emulation before the limiter.



10 Other saturation tools can also be useful here, such as valve emulations, digital soft-clippers, or even by using the output gain stages of any analogue modelling gear, such as EQ or compression in your mastering chain.



12 We're now ready to bounce the mastered file. We like to always bounce in real-time, in part because we often use outboard hardware, which can't be processed offline, but also because this gives us one last chance to listen to the final mastered file.



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MTM – Dec 2015



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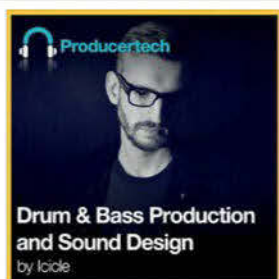


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MT Lead Review

Hardware ■ Software ■ Mobile tech ■ Accessories



ORCHESTRAL TOOLS Metropolis Ark 1

Inspired by the first science-fiction movie, Metropolis Ark 1 is an astonishingly huge orchestral library for composing epic music. But does bigger always prove better? In this case yes, reckons **Keith Gemmell**

Details

Price **€549 + VAT**
Contact via website or
+49 (0) 7665 - 9398678
web
orchestraltools.com

Key Features

- Designed specially for epic music
- District I - Orchestra: strings, woodwinds, brass
- District II - Choir: men, women
- District III - Epic percussion
- District IV - Band: e-guitars, e-bass, drumset
- 18 sections/instruments
- Extensive articulation sets
- True legato
- Based on CAPSULE for KONTAKT Player
- 160GB of samples

With the increasing trend for large epic film scores and trailer music these days, orchestral sample libraries are naturally growing larger as well, to keep up with the demand. Although a good many existing libraries are capable of producing loud grandiose scores, it was only a matter of time before something huge came along designed specifically for epic music production. Well, now it's here in the form of Metropolis Ark 1 – The Monumental Orchestra. Developed and produced by Berlin-based Orchestral Tools, it contains a huge orchestra, choir, electric guitars, percussion, a grand piano and a drum set. Everything sounds loud, with dynamics starting at mf and continuing upwards to fff. As you would expect, at 160GB it's a hefty download (75GB compressed), but if you pay extra it can be supplied on an SSD. It runs in both Kontakt 5 and the free Kontakt Player.

Recording the string orchestra as high and low strings (as opposed to the traditional four sections – violins, violas, celli and basses) is an increasingly common technique in libraries where a full sound and fast results are a key aim. Spitfire's Albion is a good example, and Metropolis Ark 1 continues the trend with Finkenstein Strings (high) and Wolfenstein Strings (low). The high

set can be played in unison or in octaves for a more powerful sound. Legato articulations are handled automatically, in the background. Turn on true legato and the transitions are adjusted according to playing speed. The lower strings, including 12 basses and six celli are only available in octaves and produce a truly massive sound – great for dangerous-sounding riffs. All the important articulations are

Heading the brass, four magisterial unison trumpets produce a splendid sound – think *Fanfare For The Common Man* and you'll get the picture. Lower down, the three bass trombones are no slouches either, producing sounds ranging from low, raspy roars to searing upper-register notes.

Not so common in orchestral libraries, the cimbasso is a valve contrabass trombone. Originally used in

It was **only a matter of time** before **something huge** came along for **epic** music production

present, but remember this is an epic library, the pizzicatos are snap-type and capable of cutting through any wall of sound that the brass may be producing.

Wind power

And so to the woodwinds, well the lower variety. No need for sissy-sounding flutes and clarinets here. However, there's the very rich and fruity-sounding Holbein Bassoons (four of them) and the Barnock Contrabassoons (four of those, too), which produce the most wonderful growling noise when played in their lower extremities.

Italian opera, nowadays it occasionally turns up in film soundtracks, which is why three of them are included here. Three tubas round out the plentiful supply of very low brass.

Epic percussion libraries are not so hard to find these days, but Metropolis Ark 1 has a fine set of ensembles and individual hits built in. Instruments represented are Solo Taiko, Taiko Ensemble, Surdo Ensemble and Percussion Ensemble. You'll find similar content in other libraries, but it's so convenient to have everything under one roof; it makes for a faster workflow.



01 Metropolis Ark runs in CAPSULE (Control And Performance Symphonic Utility Engine), which in turn integrates with Kontakt. It has four pages: a Performance view, which features the most commonly used controls including the Main knob, used for dynamic control...



02 ...a Mixer view that provides full control over the microphone positions – spot, close, tree, surround and A/B stereo...



03 ...an Instrument settings view provides a place to edit settings, such as performance dynamics, filters, attack and release, round robin and so on...



04 ...a Controller Table view for assigning keys on a MIDI keyboard and MIDI CC messages to various Capsule features. Controllers can be assigned automatically and manually. The centre display is for drawing controller curves.

No library destined for epic soundtracks would ever be complete without the horns. There are two sets here – the Schwarzdorn Horns, no less than nine of them for soaring emotionally charged lines; and for smaller section work, the Rottorn Horns with just three instruments.

Colossal chorus

Like the strings, the choir is divided into high and low patches. It's a mixed choir with voices at full volume. Latin syllables change note after note, both for single notes and chords – it works well. After all, why spend hours setting up latin phrases when this method sounds just as authentic? A decent enough grand piano is also to be found in the percussion department and, although pretty loud when needed, surprisingly, we found that we could play it fairly quietly!

Last but definitely not least, there's the band – a collection of electric guitars, an electric bass and a GM drum kit. Two guitars punch out a collection of

powerchords and come with a few special microphone positions as well, plus – of course – effects.

We've concentrated mainly on the instruments, as opposed to the technical GUI features in this review because, frankly, that's the Metropolis Ark 1's strongest selling point. Obviously, it's not suitable for gentle orchestrations, but for powerhouse productions we don't think there's anything to match it at the moment. No doubt other developers will soon follow suit, but in the meantime, this should be the library to buy for any composers involved in producing epic soundtracks. **MT**

Alternatives

With a more flexible approach and an even larger orchestra, Majestica, a 240-person epic symphony orchestra from 8dio is probably Metropolis Ark 1's nearest competitor. A 100-piece string section is spread across the keyboard and there's a 60-piece brass section. At 25GB, the content is smaller, it doesn't have a rhythm section and it needs the full version of Kontakt 5 to run it. The demos sound good, though.

Do you really need this?

If you write trailer, game or contemporary film music – or any other type of production where very loud bombastic orchestral music is the order of the day, we reckon Metropolis Ark 1 needs serious consideration. It's beautifully recorded and blends well with other libraries. It's not for everyone, though, which is why we were about to award a score of 9. But what the hell, we're all fired up, so let's give it 10 anyway! It deserves it.

MT Verdict

- + Huge, detailed sound
- + True legato
- + Intuitive GUI
- + Many articulations, including swells
- + Good choir with Latin syllables
- + Mighty brass
- + Inclusion of electric band and drums

- No high woodwinds
- Dynamics below mezzo forte are out

A terrific orchestral library that contains just about everything required for composing and producing loud, powerful epic music.

10/10



The Boutique range is three classic synths we've been waiting for – all three are shown here with optional keyboards attached

Details

Price £229-£299

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W www.roland.co.uk

Key Features

- JP-08, JU-06, JX-03, K-25m
- JP-08
Polyphony: 4; 64 patches; 8 patch presets; 36 controllers; delay effect
- JX-03
Polyphony: 4; 32 patches, 16 user; 23 controllers; chorus & delay effects
- JU-06
Polyphony: 4; 64 patches; 24 controllers; chorus & delay effects

SHARED

- 16-part step sequencer
- Rechargeable battery, 6-hour charge
- Connections: USB bus power/MIDI, mini input and output jacks, MIDI I/O, volume rotary
- Weight: 940g to 970g
- Size: 300x128x45mm

ROLAND BOUTIQUE



They finally did it. Three classic synths that we've all been craving remade for the 21st century – except, knowing Roland, we doubt it's quite as simple as that.

Andy Jones gets his hands on some synths you might not be able to...

I'm not going on another Roland rant – life is too short and so is my word count for this review. The Boutique range does need explaining, though, so I'll keep it brief. Roland made great gear; invented dance music with it (kinda by accident); went digital (just like everyone else); everyone cried; everyone kept saying 'release the classic stuff again!'; Roland ignored them; then Roland didn't ignore them; suddenly, we have loads of Roland classic gear in new forms: analogue, digital, and, of course, drum roll... AIRA.

Yes, the new Roland classic gear can take a confusing array of forms: pure analogue (as in the System 500 modular); software 'plug-outs' (as in System-1); digital re-imaginings (for

want of a better expression with AIRA); and now digital emulation with the Boutique range on test here.

There, I did it – in less than 150 words, I have explained what Roland

although 'making up for lost time' could also be an answer. Either way, who cares? We're getting what we asked for and we're getting it in spades.

In less than 150 words, I have explained what Roland has been up to for the last 30 years

has been doing for the last 30 years, and the (at least) four new strands of heritage-based synths the company is producing. Why (at least) four? Because Roland has divided itself into competing units and companies,

There is a problem with this

I'm pleased you've read the intro and I'm pleased I've written it. It's the neatest and most concise version of Roland events I have managed to put down on paper, but I have to warn you:

as pleased as I hope you're also feeling after reading that intro, you might not want to read any further because the Boutique gear in the picture – and the gear that I am just about to write about – may well have sold out by the time you read this. A scan around the dealers reveals that you can order it as I write this, but Roland has said that it is limited edition, and that does appear to be true. So if you have already taken the plunge and bought the Boutique, then well done; and if you haven't, then there might just be a glimmer of hope for you anyway.

When a company announces a limited-edition set of products, it's usually to test the water or create a bit of excitement – or both. When those products sell out quickly, it would be pretty stupid not to release something along those lines in the future. In this case, then, I'd expect either more of the same or larger versions, which in itself is interesting, as Boutique's size is both its Achilles heel and its strength.

Either way, though, I'd suggest reading on. Boutique may well have a longer-term future in one form or another. Besides, I'm on a roll as far as the writing is going. What have you got to lose?

Three classics

So we have three classic Roland synth modules, plus an optional keyboard (the intro pic shows all three with this keyboard attached, by the way). As I said, these are digital emulations of the real thing and they use the same Analogue Circuit Behaviour (ACB) technology that made the AIRA TR-8 and TB-3 sound so great. But whereas they were re-imagined versions of the Roland classic TR-808 and 909 drum machines and TB-303 bassline, these little fellas are complete digital recreations of classic analogue Roland synths – namely the Jupiter 8, JX-3P and Juno 6 – and called (respectively) the JP-08, JX-03 and JU-06. The optional keyboard I was telling you about is called the K-25m.

Let me say, first up, that these things are tiny – we'll get that bit out of the way quickly. The benefit is that you can easily fit all three on a desktop

Roland JP-08 front panel details



and carry them – when the box turned up for review, it was so light that I thought there was only one module inside it.

Shipping-wise, this must help keep the costs down, and when you realise that you can pick them up for anywhere between £229 and £299 you start to forgive that size – this is a fraction of what you will have to pay for the real things second-hand. The negatives are obvious. The keyboard is as tiny and the mini-key hating brigade will be marching to Roland's UK HQ in Swansea as we speak. Fat-fingered people might struggle with the units, but structure-wise they are all surprisingly solid – certainly a lot beefier than their sizes promise.

Each unit comes with batteries and a speaker, making them super-portable. They are USB-powered, too, so you don't need the batteries in this scenario. The speakers are a little too small for 'proper' work, but loud enough to audition and use away from your studio. They are perhaps not quite up there with those found on Yamaha's reface range, which these compete with on some levels.

I'll look at each unit in turn, introducing most of the concepts and feel of each. A lot of these joint features will be covered with the JP-08, which I'll test first, but I won't detail the synthesis methods of each synth in too much depth. Suffice to say that the originals sounded great, and each of the new units does replicate the control and synthesis architecture of those. Whether they sound as good, well, we'll soon find out...

The JP-08

So to the JP-08, a straight-up version of the Jupiter 8 – a synth that has won the hearts of many, including Vince Clarke, Duran Duran and Roxy Music, and one that can command anywhere between £4,000 and £10,000 second-hand. Yes, really.

This version has four voices of polyphony, half that of the original and a shame, as the name obviously implies eight. The unit is compact, I hope I've made that clear, but on power-up 21 sliders, one screen and two controllers all light up to reveal a lot of hands-on action in such a small space. That tiny front panel manages to cram 36 of the original synth parameters in to tweak and adjust, and there are 64 presets to enjoy – more on those in a bit. Extras over the original include extra base waveforms and wider VCO range. There are the Unison, Poly and Solo modes that helped make the original so popular – big sounds can



Simple controls around the back include mini phones, main in and outs plus MIDI. There's a volume rotary, USB and power

→ be had in Dual mode by way of a button press or two.

This is central to how the sounds operate on the JP-08. In Solo mode, you can select one patch number of the 64 on offer using the left-hand Patch Number buttons. In Dual mode, however, you select a patch number for both upper and lower parts (selecting between the parts using the Lower/Upper button), thus offering big sounds or splits that can be saved as one of eight patch presets.

The lit ribbon controllers are cool, initially set as pitch and modulation controllers, and you can also audition sounds with the left-hand one. I had the unit up and running with Logic in no time (you will need to install a driver) and was triggering notes via MIDI and USB (which doesn't run to audio), both as Dual combis and single Solo notes.

The unit is tiny, but the controls are surprisingly easy to get your fingers around, thanks to the sliders each having LEDs. Bigger would be better, I'm sure, but I definitely didn't find 'small' holding me back.

There's a 16-part sequencer that's pretty easy to use. Simply hit the Dial



Angle any of the Boutique range within the optional K-25m. You get three positions, but to us this one looked a bit toy-like...

patterns built in, which you can edit – change tempo or note keys for example. Without the optional K-25m

course, if you do use a separate MIDI keyboard it's somewhat easier.

While I'm discussing the Manual button, you also press this and one of the number buttons to access System Settings, including MIDI channels, Master Tune and the LED display (when it goes into Vegas mode) – all very easy to do.

So to the sounds, and the unit is better than you might think when used with its built-in speaker, but I'd definitely recommend plugging it into your own studio set-up to really get the best out of it. The first couple of banks of Solo sounds are nothing to write home about, if I'm honest – you'll hear these bare basses and raspy leads on just about every soft synth you own. However, when you get to the third bank things start hotting up. Here, some of the strings and more pad-like presets move away from the drier start the first two banks offered.

More effects here would help – on top of the delay that you get – but surprisingly it's the small size that comes to the rescue. With it being so darn small you are never more than a finger-length of a tweak away. In short, it's easier to make sonic changes as it's so small, really it is; and since just about every nudge yields something interesting you find yourself synthesising more than you would on a larger piece of hardware, and certainly anything in software – that has to be a good thing, right? →

Surprisingly, it's the small size of the unit that comes to the rescue – you simply tweak more

and Manual keys simultaneously and then press Manual to play. It cycles around the 16 buttons that you use to select patches and patch presets and you light each one to play a note – as you might expect. There are several

keyboard added, you use the ribbon controllers to alter values. To change a note's pitch, for example, hold that note and adjust it using Ribbon Controller 1. I'd have preferred notched dials, to be honest, but you can get by and, of

Flatten the module like this within the K-25m and we think it looks a little better. You may disagree...



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→ There's no getting away from it, though: Dual mode is where the JP-08 excels. Here, you just take everything and double it, and suddenly the unit goes from 'maybe' to 'definitely', and you start to understand why those Jupiter 8 owners you've always been so jealous of were so smug with you – this thing can sound massive. Combine that with the easy reach synthesis that I mentioned a paragraph ago and this is one hell of a sound from a one-foot-long module.

The K-25m

I will take a quick diversion now to talk about the the K-25m, as it was about here in my tests that I first used it with the JP module. You connect it up by simply slotting the module in after connecting up a ribbon-type pin connector. It's as simple as anything, and certainly makes playing the synth fun and easy. Effectively, you now have a portable synth as the batteries and speaker really come into their own.

I do have some problems with it, though. The keyboard action is what Roland would describe as 'aimed at the EDM generation' – more trigger than player. And, while the concept

Roland JU-06 front panel details

a CONTROLLERS

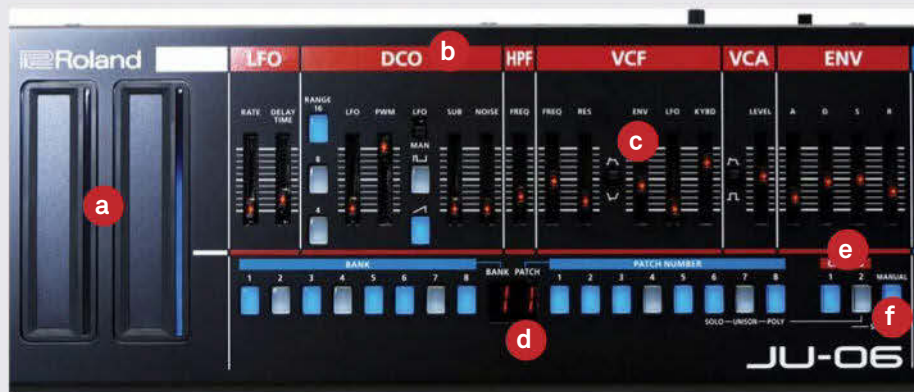
Two lit controllers set to pitch and modulation, but can be used for a variety of data-setting tasks.

b DCO

As with the original, a DCO offers stability (even though the full path is an emulation of analogue).

c ARCHITECTURE

Simple but effective, it's a workhorse synth with 'proper' sounds that you can program easily.



d SOUND SELECTION

Unlike the JP, you select by bank and then patch number to load up each sound.

e CHORUS EFFECTS

Help fatten the sound with two effects, but these can add a little noise to the output so beware.

f SEQUENCER

As with the JP, you can program your 16-part step sequencer here.

Depeche Mode, Underworld and The Chemical Brothers (and, of course, Vince Clarke. – he has everything). It was a fully programmable poly synth

original). There are 23 controls on the front panel, plus a faster LFO and a continuously variable hi-pass filter for a smoother sound. There's a sequencer and it's pretty much the same form as the JP-08 – easy to use with the Manual button and controllers.

I did notice a little noise when leaving the unit on its own, something that I didn't get with the JP-08, and I later realised that this was with the optional chorus effect switched in. Also, with the module upright in the optional keyboard, the speaker did tend to rattle the casing a bit, so I would suggest using it flat to reduce this, or lose the keyboard altogether. Again, this is an issue that I didn't experience with the JP.

A Jupiter that is mobile and fits in your handbag. Admit it, you want one, don't you?

works well – brilliantly in fact – the end result looks, well, how can I say this politely? A bit childish. It looks, quite literally, like a toy version of the real thing. And this illusion of 'toyness' is enhanced further with the module in its upright position. I even had an image of a synthesiser birthday cake in my head for some reason. Of course, you might not think it looks like this at all but, personally, I'll be keeping all three units on my desktop, chained together and looking dead cool, but with my own keyboard triggering them. But, but, but... A Jupiter 8 (OK, 4), mobile, battery operated, and one that fits in a handbag? Admit it, you want one, don't you?

The JU-06

On to the JU-06, and the Juno-106 that it's modeled on is one of the company's all-time favourites. It was – and probably still is – used by

– a stable analogue thanks to a DCO architecture. It sells for £650–£1,200, so a lot more than the new JU-06.

Again, you can stack units to double polyphony (you get four to start with, compared to six on the

Again, you can stack JU-06s together to double the standard 4-voice polyphony...



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→ Sound-wise, the JU is a little more consistent than the JP, which has its Dual mode to add fat. You select sounds via bank and then patch number – a little different from the JP, but just as easy. The sounds are beefy lows and searing leads and pads – just what the original is famed for – and it incorporates a few more noisy elements that add a bit of variety as you step through them. The additional chorus effects really do help to add some depth, too.

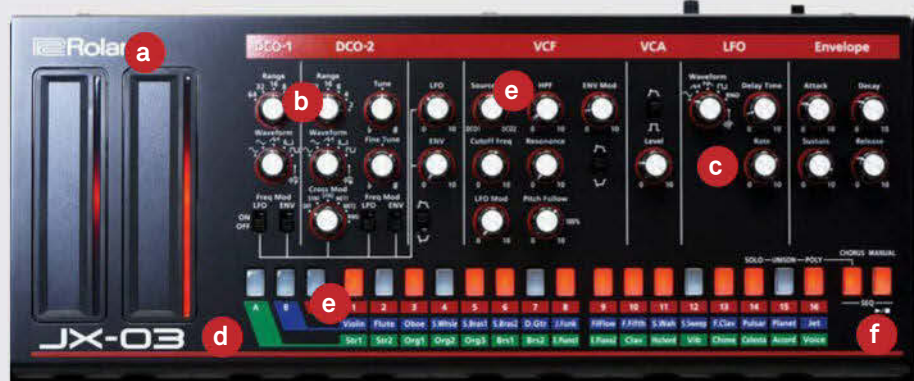
If I sound slightly underwhelmed I'm not, but there is a reason for my perceived lack of excitement. As I was going through the sounds I was feeling lots of familiarity – nothing that blew me away, just some very good workmanlike sounds, but then I realised why I had this almost *deja vu* feeling. The Juno is probably the synth I've used more than any other as an emulation on my computer: from the Creamware Pulsar's U Know synth through to various freeware plug-ins. The sheer number of people who have tried to recreate it is testament to its sound – it makes great synth basses, pads and leads, simple! It's a proper solid synth and one with a simple architecture that you will easily get

Roland JX-03 front panel details

a **RIBBON CONTROLLERS**
No keyboard attached? Use these to adjust values and more.

b **DUAL DCOS**
These offer a fatter sound, especially when combined with the effects.

c **SIMPLE ARCHITECTURE**
Again, like the JU, this is so easy to use, and you will want to fill those user spaces with your own sounds.



d **BANK A**
The green bank offers everything from strings to accordion. And brass. Bloody brass.

e **BANK B**
The blue bank has violins, guitars and more brass.

f **SEQUENCER**
The 16-part sequencer is, as on the other two, easy to use and more beneficial to this module.

Roland synth, but not purely analogue. It had a digitally controlled oscillator but a subtractive analogue architecture – a bit of each, then – so possibly suited more than the other

open up the synth) for a song. You can too – not for silly money, maybe £400-600, but still more than this unit will cost you.

But the real beauty of the JX-03 is that both the aforementioned units are merged into one box, so you get the original engine (albeit an emulation) and all of the controls of the original programmer. Again, there are additions: new waveforms, expanded DCO and modulations. There are 32 presets and user locations – just like the original – plus that 16-part sequencer. Again, this utilises the controllers (should you not have the keyboard) to change parameters and works in exactly the same way as the JP sequencer, as detailed above.

In terms of sound, you can quickly understand why the original became a firm favourite for the likes of Orbital and Thomas Dolby, but the emphasis here, as with the original, – with the presets anyway – is on recreating real sounds. Uh-oh, this has always been one of my hates with synthesisers: when they have a world of sound to explore and use all of that energy in recreating brass. No thanks.

So what we get are two banks of 16 sounds, starting with good strings and organs (I won't even mention the brass) and then moving through other keyboard instruments, then violins, guitar effects and some more synth sounds. In the main, it does a great

The beauty of the JX-03 is that both synth and programmer are built in to the unit

your head around, so it's one for good old-fashioned and fast programming.

The JX-03

The JX-3P was another much-loved

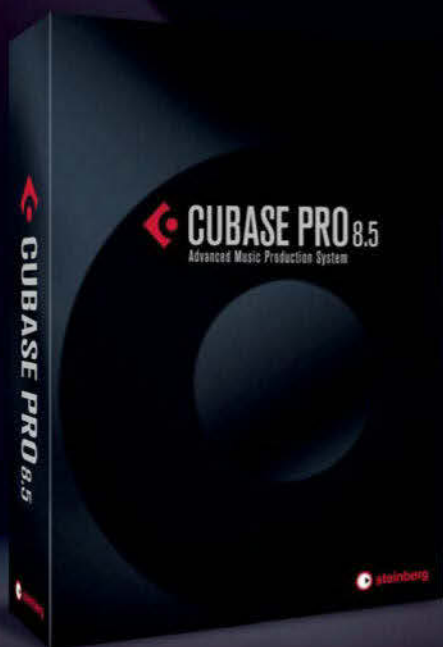
original synths to be reborn in Boutique. I remember the original well, as I had the chance to pick up one and its optional PG-200 programmer (which added 24 controllers to help



The JX-03 comes with the engine and programmer of the original synth all in the one unit...

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→ job of recreating the original sounds, so if you liked them then you've come to the right place. If, that is. To be fair to the original, though, it was what the synth could do beyond these sounds that won it so many fans – and all of that is present and correct plus, of course, all of the controls from the original programmer to change these sounds.

What you are being encouraged to do – you could assume, especially given the 16 user locations – is move away from your base sounds and create your own, and this is where the JX-03 comes into its own. With two DCOs and a very simple architecture, you will soon be creating your own fat sounds, and the onboard chorus and delay help sounds move even further.

Of the three Boutique units, then, this is the one to tweak, but its lack of onboard controller lights – compared with the JP anyway – might be a little more offputting for doing this. I did

I'm not really convinced Roland is touting these as direct analogue replacements to the originals anyway. I'd say they are fun and portable versions, not authentic replications of the sound – and in that respect, and for the money they are being sold for, they are great (I wonder, too, as Roland has the System 500 analogue ready and waiting, whether we will see true analogue reissues of these. Oh yes!).

One thing that you will agree with me on – with all three of these synths – is that they are clearly one hell of a lot of fun. Stack them, line them up, light them up, take them anywhere, and they do a super-fun job. They are also among the most tweakable little modules I've come across, with a surprisingly sturdy feel and lovely action on the controls – you will make new sounds with them, and that's what synths are all about.

I'm more excited about what the K-25m offers than how it delivers it. I love the idea of bringing out the JP-08

I am **more excited** by what the **optional K-25m promised** than **how it delivers it**

feel that the sequencer was also more of an essential with the JX, as you'll want to use it more creatively, whereas I can't help thinking I'll just use my DAW via USB to sequence the other two.

Conclusion

So it's a mixed bag really. We get three classic synths with a lot in common – sequencer, some effects, neat controllers, touch strips, some lights, plus an optional keyboard – but three quite different synths for different people. But, hey, so were the originals.

Sound-wise, there are those saying that they match the originals. While I did try matching the AIRAs with their dance classics – with pretty positive results, I'd have to say – sadly, I didn't have access to a £10k Jupiter for this (by all means send me one if you have one spare, though), so I can't tell you exactly. What I can say is that the true analogues that I do have in my studio exhibit a warmth and depth that is notable, as you'd expect. But use these units with the same speakers (ie, not their onboard ones) and you'd be hard pressed to tell which are which on *certain sounds*.

at a party to impress and simply playing a classic synth right there (and yes that says more about how sad I am and the kind of parties I get invited to than anything else, but you know what I mean). Sadly, the K-25m doesn't quite fulfil the promise, and the shell itself is a little fiddly, but I do want to congratulate whoever came up with the concept because I love it. I'd have been happy to pay a few more quid for a bit more quality, but maybe that's just me.

Sadly all of my missives could well be a load of words that are thrown down an abyss and never retrieved because Roland might well be making these limited, which is a shame. The concept is brilliant, as is the price. I also love the size (which surprises me) and would love to see more. I've just bought a proper and very big analogue synth, which sounds better for sure, but over two months of owning these I found myself using them more – I even got used to that keyboard (OK, a bit). Sure, they might not match that classic analogue for its sound and range, but for pick up and play 'classic' synths they can't be beaten, and there's nothing else out there quite like them. If they really are gone, that really is a bummer. **MT**



MT Verdict – JP-08

- + Love the fat sounds in Dual mode
- + Patch presets are useful
- + Easy sequencer
- + Lights on controls really help
- + With the keyboard added you have yourself a mobile Jupiter – hell, yes please!
- + It's also very cool minus the keyboard
- + We actually like the small controls, which encourage tweaking...

- ...but we understand not all will
- Only four-voice polyphony

We always thought this would be the best, and it is. We'd opt for this Boutique every time.

9/10

MT Verdict – JU-06

- + Very simple to use
- + Good range of basses, leads and pad sounds
- + Chorus and delay fatten things up
- + Proper synth with proper sounds
- + Incredible flexibility

- Bit noisy with chorus on
- Nothing too fancy – you may have to work to get the most from it

One of the cheaper units and a good, solid performer. Great compact, workhorse synth.

8/10

MT Verdict – JX-03

- + Easy to use
- + Encourages you to create sounds
- + Sounds just like the original
- + Simple to use
- + Easy intro to synthesis

- Sounds just like the original!
- Lacks the light appeal of the JP

JX is what many wanted from the original in one box, but in terms of sounds you will have to program it.

7/10

MT Verdict – K-25m

- + Concept is brilliant
- + ...and it does work
- + Adds portability to the units
- + Easy to use... mostly

- A bit fiddly
- Keyboard itself not great
- Ribbon connector hard to unplug
- Case rattles a bit on some sounds

We would probably pass on the keyboard, but love the concept of taking these classic synths out in a bag to play anywhere.

7/10




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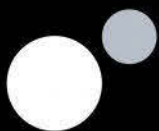
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RX 5 Audio Editor

Flawed audio recordings are now a thing of the past, thanks to the audio wizardry behind iZotope's RX 5 Audio Editor. **Mark Cousins** takes a listen

Right from its first product, Ozone, iZotope's range of software plug-ins has been renowned for its surgical accuracy and precision operation. It's no surprise, therefore, that iZotope's RX 5 Audio Editor has come to define itself as one of the leading choices for audio restoration and post production. As well as the usual 'corrective' tasks – such as noise removal, click suppression and so on – RX has proved itself to be a boon across a range of production activities.

One of the key factors that has driven the success of RX is its focus on spectral-based processing. As such, RX has always had the ability to work with time and frequency-based selection, all driven from a large spectral display of the file you're working on. Combining standalone and plug-in operation, RX has allowed itself to be integrated smoothly into your post production workflow and, with the introduction of RX Connect the integration with Pro Tools couldn't be tighter.

Never wanting to rest on its laurels, iZotope has introduced a range of new features with version 5 of RX. Rather than reinventing the wheel, RX 5 is a gradual evolution of the application and

Details

Kit RX 5 Audio Editor
Manufacturer iZotope
Price Standard £239
 Advanced £815
Contact Time + Space
 01837 55200
Web www.izotope.com

Key Features

- Instant Process Tools
- Module Chain
- De-reverb
- Spectral Repair

In-use tips

The Standard version of RX 5 is considerably cheaper than the Advanced, so what are the differences? On the whole, the newest modules – such as De-plosive, Leveler and Ambience Match – are available only on the Advanced Version. For the core 'spectral cleaning' tasks, the Standard version is near identical, and now includes features previously available only in RX 4 Advanced.

its associated plug-ins, informed by the needs of professionals. While the improvements are across the board, it seems some of the most noticeable changes relate to dialogue work, including a De-plosive module for removing low-frequency bumps created by Ps and Bs, and an improved Audio Leveller that now includes intelligent De-ess and De-breath algorithms.

Instant Process takes RX closer to almost Photoshop-like retouching of audio files, whereby you can 'paint out' a range of audio problems onto the spectral display. Compared to the old system, which required selection first followed by your choice of correction module, the new Instant Process is great for speeding up correction of audio files with flaws.

Audio hygiene

The new Module Chain feature allows you to link a series of modules to work as a 'one-click' repair. So, in the example of dialogue improvement, a module chain could include De-plosive followed by De-noise and Leveler. By designing your own Module Chains, with the ability to quickly drop them in and out on a file-by-file basis, you can soon see how repetitive, multi-stage restoration tasks can be optimised intuitively.

There are a wealth of other improvements – an updated EQ module, now called Corrective EQ, has an Ozone-like visual and sonic finesse, although it might have been useful to

have an in-built FFT display. It's also good to see Ambience Match embedded into Pro Tools as an AudioSuite plug-in, where its ability to fill background noise between edit points is welcome. It's worth noting, too, that some Advanced features – such as the DeReverb module – have made their way onto the standard version.

The improvements offered in version 5 further RX's position as a leading audio restoration and post production solution. These incremental changes show iZotope is keen to develop the application and plug-ins in a way that aligns itself with its users' workflow. So, while the list of new modules is relatively light, the raft of operational tweaks mean RX 5 is the most sonically and time-effective tool available to the post-production fraternity. **MT**

MT Verdict

- + Superbly transparent results
- + Essential post production toolkit
- + Faster workflow
- + New De-plosive module

- Full version is expensive
- Connect integration varies between DAWs

iZotope's RX 5 may well have become the industry standard for audio restoration and post production, with a level of maturity and sonic hygiene few can match.

9/10

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Details

Kit SC407
 Manufacturer Eve Audio
 Price £2,799 pair
 Contact Nova Distribution Trading Ltd 020 3589 2530
 Web
 www.eve-audio.com

Key Features

- 4-way system
- Dimensions: 600x260x320mm
- Weight: 18Kg
- Free-field frequency range (-3dB): 35Hz-21kHz
- Tweeter: AMT RS3
- Midrange: 100mm/4"
- Woofer: 2x 165mm/6.5"
- Crossover frequency: 280Hz/3000Hz
- Maximum SPL @ 1m: 116dB
- Number of amplifiers: 4
- Output power (woofers): 2x 185W
- Output power (mid-driver): 180W
- Output power (tweeter): 50W
- Protection limiter
- High-shelf filter (-5dB - +3dB) > 3kHz
- Desk filter boost (0dB - +3dB) 80Hz
- Desk filter cut (-5dB - 0dB) 160Hz
- Low-shelf filter (-5dB - +3dB) < 300Hz
- Level-lock dip switch
- Filter-lock dip switch
- Input level dip switch +7dBu/+22dBu
- Connectors: XLR/RCA
- Power consumption in standby: < 1W



EVE AUDIO SC407

The SC407 might be the smallest of EVE Audio's SC4 series of four-way active monitors, but they're still pretty substantial. **Huw Price** discovers whether four really is fabulous

EVE's SC4 series comprises two models – the SC407 and the SC408. The driver sizes may be different, but both have four drive units. Two 6.5" woofers handle the bass and low mids from 35Hz up to a crossover frequency of 280Hz. The 4" mid-range woofer carries on up to 3KHz, whereupon the ART tweeter kicks in.

Both the midrange driver and tweeter are mounted on a substantial metal plate that can be rotated to allow the SC407 to be used vertically or horizontally. The default orientation of the tweeter/midrange driver plate is set for horizontal enclosure placement.

In practice, this would be practical only on the meter bridge of a sizable mixing console or a substantial monitor speaker shelf. For vertical placement, the plate must be rotated to ensure the tweeter is above the midrange driver.

The bass and midrange woofers may be different in diameter, but the construction is very similar. Both feature EVE's low-distortion copper cap magnet system and glass fibre-coated

diaphragms formed with a honeycomb structure to be lightweight and stiff. These are called SilverCones, and they are the reason for the SC in the model designations.

The tweeter is an AMT RS3 (Ribbon System 3), which features a bigger magnet system for increased output level with low distortion. It's a folded

control rooms mid to large in size. In common with all EVE monitors, DSP technology rather than conventional electronic equalisers and attenuators control the system. The DSP engine employs a high-quality A/D converter (24bit/192kHz) from Burr-Brown. EVE's DSP philosophy is that it should serve the user and be as simple to operate as

EVE's DSP philosophy is it should be as simple to operate as an analogue system

ribbon design that's manufactured solely for EVE monitors.

Fabulous four

Unusually, there's a PWM amplifier designated for each drive unit, and they combine for a total short-term output power peak of 600W. This high-power rating and the massive enclosures indicate that the SC407 is intended for

an analogue system. Having tried several EVE monitors in the past, this is something the company has achieved.

This system provides you with control over volume level, muting, treble (3KHz) and bass (300Hz). There's also a desk filter that provides up to 3dB of boost at 80Hz, or up to 5dB cut at 160Hz. The boost will add low-frequency punch should you require it

and the cut compensates for reflections off mixers or work surfaces.

The most remarkable thing is that all the control parameters are accessed from a single point, and it's located at the front. The way it functions is so intuitive, you should be able to figure out the main functions without recourse to the manual.

On display

The LED modes will, however, need some investigation. In total, there are

more importantly, you can do so while you're sitting in front of the speakers. Initial impressions were that the SC407 sounded too boomy in our room, and listening to test tones as well as program material led us to conclude that the problem was in the upper bass/lower midrange.

It's important to stress that the issues were more likely being caused by reflections off the surface of our workstation than the speakers themselves. We selected the desk filter,

It's doubtful whether there's a **brand of monitors** that are easier to adjust than **EVE**

four modes, but they all seem to offer some form of level metering. In practice, this seemed a bit gimmicky because most DAW stereo busses have metering – as do most desktop controllers.

The rear panel accommodates XLR and RCA audio inputs, the power switch and three usable DIP switches. These switches allow you to lock your volume and filter settings, and toggle between two input level settings.

EVE's SC4 series cabinets have rear rather than front ports. The designers wanted to avoid bass distortion caused by port compression – or 'port chuffing' as it's often referred to. EVE's solution is a large rectangular port without hard edges. However, the rear location means the enclosures will ideally be placed as far from walls and corners as possible.

Size is everything

The sonic results will depend very much on the nature of the room you're working in because the SC407 goes very loud and generates a lot of bass energy. In small and untreated studio rooms, they might get a bit overpowering with the equalisation set flat, but it's doubtful whether there's a brand of monitors on the market that are easier to adjust than EVE.

The beauty of EVE's system is that you can make any adjustments necessary using a single control and,

applied a 3dB cut at the preset 160Hz band and – as if by magic – the boom was gone.

We also found it necessary to dip the bass response by 2dB. The sub frequencies were still clearly in evidence, but above that the SC407 produces a quick and controlled bass that sounds natural and well defined. Best of all, there's no port chuffing.

ART tweeters are known for their open airiness, and the EVEs' don't disappoint. However, those more familiar with conventional dome tweeters may need to adjust their ears to the SC407's natural brightness. After a short while, we also decided to dip the treble response.

Fair to middling

The problems we had were confined to the midrange. Vocals that usually sound smooth and intimate can sound a bit reedy and hard-edged on the SC407. Similarly, strings and hi-hats that may sound full and sweet on some speakers can come over as thin and papery on the SC407. Whether that's an issue with the SC407 or the source material is open to debate, but we can report that if

Alternatives

Four-way monitors of this size and power are specialised and tend to be expensive. Potential competitors include the Barefoot Micromain 45 (£999 pair), the outstanding ADAM S3XH (£1,995 each) and the Focal SM9 (£4,080 pair). The Quested V3110 (£2,292 each) is an active midfield three-way with a dedicated midrange driver.

In-use tip

In a smaller studio environment, it's most likely you'll need to use the SC407 in vertical alignment – especially if you prefer to place two or more sets of speakers side by side. The four screws of the plate can be released to reposition the tweeter so it's above the upper midrange driver in the vertical position. The plate is a very tight fit and the best way to extract it is to twist the screws slightly into the plate thread and use them for grip as you pull upwards. Simply turn the plate in the desired direction, pop it back into its recess and re-tighten the screws. You will need an Allen key for this procedure.

there is harshness or honkiness, these speakers will bring it out.

Stereo imaging is crisp, the soundstage is deep and the overall ambience is very open, but we did find the SC407's overall character was slightly 'top and bottom' rather than even across the frequency range.

Having said that, our listening room is fairly small and it could be that the SC407 was just a bit too big for the space. We were also obliged to use them as nearfields, but we found the sound more balanced as we moved further away from the speakers. So perhaps the SC407 is better suited to midfield monitoring.

The SC407 is a very well made and fine sounding monitor that should be capable of producing good results in the right environment. We found it better suited to electronica rather than classical and acoustic music by some margin, but in our room we would choose to combine the SC407's with some smaller nearfields rather than use them as our one and only set of reference monitors.**MT**

MT Verdict

- + All controls on front panel
- + Standby mode
- + Ample power
- + Open sound with good imaging
- + Impressive bass

- Midrange slightly thin
- Trebles can sound edgy
- Not suited to small rooms

In price and sound, the SC407 is really a monitor for those with big budgets and big rooms. There's much to admire, but there are other EVE Audio products we prefer.

8/10

Sweeping arcs give the 'Peter' an identity not seen elsewhere. Pictured - the 9U in Cherry



SYNTHRACKS 'Peter' Eurorack case/enclosure

A new strand of a British company is now making Eurorack cabinets with a classic look that will tempt any synthesist.

Dave Gale examines the casing...

Some years ago, I became aware of a company called 'Studi racks', which had become highly established and respected for building all sorts of very fine rack systems for studios, as well as bespoke studio furniture. So it came as no surprise to learn that the people behind this outfit had embarked on the next phase of its studio furniture journey, with the development of a new branch called 'Synthracks'.

The Eurorack concept has pretty much established itself as the dominant modular format, and that is reflected in this first offering from Synthracks, in the shape of the 'Peter' cabinet enclosure. Named in reverence to the many synth composers who share the same name, the 'Peter' is available in both 6U and 9U configurations (two or three rows), and a width of 104HP, making them perfectly compact, and suitable for placing on a small worktop, possibly

Details

Kit 'Peter' Eurorack case/enclosure

Manufacturer

Synthracks

Price £270-400 (size & wood dependent)

Contact 07881

707537 E: tobias@

synthracks.co.uk

web www.synthracks.co.uk

Key Features

- Solid wood construction
- Hand-made in the UK
- Bold new Eurorack enclosure design
- Available in two sizes and various wood finishes (see box)

next to a DAW-based setup, on a desk. Unlike a 'skiff', these units have a sloping upright position, allowing a perfect user experience, as the modules face the user at a comfortable angle.

Perfect Peter

On removing the cabinet from its packaging, I was immediately struck by both the weight and build quality of the

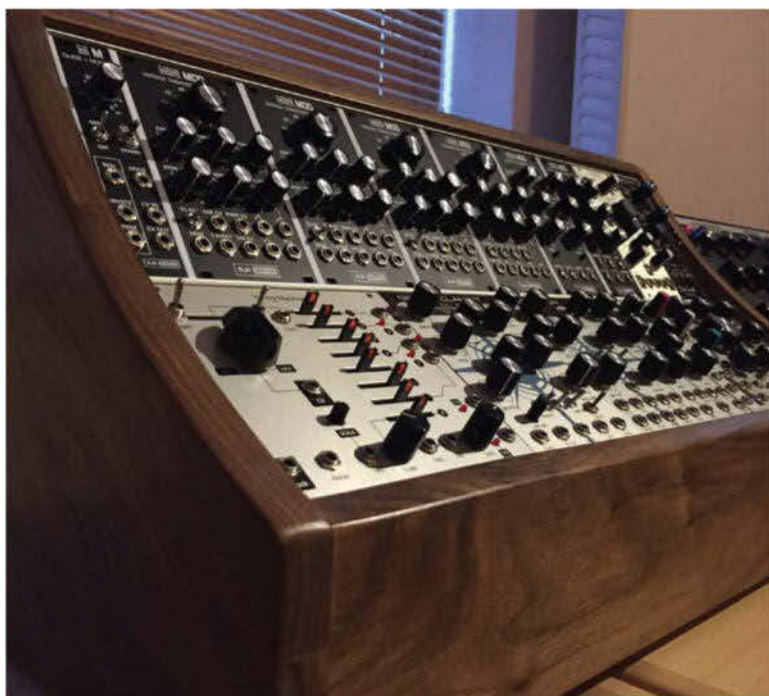
whole enclosure is lifted off the desktop by 5mm or so, allowing an exposed channel which runs the length of the rear of the unit, to act as an airflow vent. This works in combination with a small, two-component removable panel on the back of the unit. This panel allows access to the inner sanctum at the rear of the cabinet, not only for air convection but also to run the odd cable

On removing the cabinet from its packaging, I was struck by the weight and build quality

'Peter'. This is not some flimsy unit put together with Allen keys, rather a robust solid wood affair, with some nicely thought out touches. Apart from the beautiful sweeping arc design, which is present on both of the side panels, the

for a module that might take a DC power supply from the rear, such as the Roland System 1M.

The 'Peter' does not ship with any kind of power fitted; however, with the emergence and resulting popularity of



Populated with modules, the 6u Walnut version looks outstanding against the vintage black of the AJH Mini Mod

It's ergonomic and crafted beautifully, hand-made in Wales by skilled craftspeople

the current range of DC-based power supplies, from companies such as Tiptop Audio and 4ms, it would be relatively easy and cheap to fit something suitable. There is plenty of room for bus boards along the rear and base of the enclosure, and thanks to the airflow and convection, your modules should always remain cool under pressure.

Spoilt for choice

There are plenty of wood options, with the Oak, Walnut and Cherry solid wood finishes commanding the higher price bracket. However, if you are working on a budget, the appearance of the Black Lacquer finish not only looks very smart, but will also trim the price somewhat. This is down purely to the cost of the solid wood, so the build

quality will be the same, regardless of the finish.

There is no doubt that the 'Peter' is in the middle to high-end price bracket, but for my money I don't think you can beat the allure of a solid wood enclosure, which coupled with a striking design will make you smile every time you reach for the power button and start making a patch. It's ergonomic and crafted beautifully, hand-made in Wales by skilled craftspeople, and the first release in a line that looks set to become very popular throughout the Eurorack community. **MT**

MT Verdict

+ Stunning build quality
+ Beautiful design
+ Well thought through practical elements

- Higher cost of some of the solid wood options
- Only fixed width options available at present

A very desirable enclosure for any Eurorack setting.

10/10

Wood and size options

All units 104hp with sliding bolts	6u/9u
Black Lacquer	£270/300
Walnut	£330/380
Cherry	£310/350
Oak	£310/350

Fixed bolts available at small additional cost



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Choice
9/10
MusicTech

AJH SYNTH Mini Mod

A faithful recreation of the Minimoog Model D, in Eurorack form. **Dave Gale** patches up the AJH Synth Mini Mod system and reports back his findings...

Details

Manufacturer
AJH Synth
Prices RRP prices for
Black Vintage or Silver
fascia
VCO (14HP): £260/245
VCF (14HP): £210/195
VCA (10HP): £155/145
Dual (12HP) Contour r
Generators: £210/195
Glide + Noise (6HP):
£165/155
Contact
+44 (0)7867 008964
Web
www.ajhsynth.com

Prior to developing the Mini Mod, Allan J Hall worked as a service engineer, repairing and modifying numerous analogue keyboards, including Moogs. Combining this knowledge with his experience in product design, he began an 18-month journey to develop a Eurorack system that would recreate the Minimoog Model D. Now, his initials adorn the front panelling of this set of modules.

The design of these modules harks back to the Mk 1 Model D, which is thought by many to be the most desirable of the Minimoogs. However, placing a Model D in Eurorack form is not without its challenges, not only in technical requirements but also in form factor, which is why you will find a module for each component of the original synth. The review system consists of three VCOs, one VCF, Dual Envelopes and VCAs, and a Glide/Noise module – so seven modules to make up the required Minimoog architecture.

The grand opening

The Mini Mod is available in two flavours; Vintage Black, which is very Moog-like, and Classic Silver, more in keeping with many Eurorack modules

The first point that strikes you, as you start to patch the Mini Mod together, is the architecture at the front end. The Minimoog had three oscillators, all of which would need to feed the next stage – the filter (VCF), so cleverly AJH has fitted an input mixer to the front

end of the VCF, meaning the Mini Mod can be considered a self-contained combo, without the need for a mixer.

At this point, the temptation to select a Saw Tooth output from each oscillator was too great – and slowly increasing the amplitude of each wave form, with the subtlety of detuning, took me back to my first encounter with a Model D. The closeness of the timbral make-up to the original is uncanny. The discrete transistor core of the oscillator is at the heart of the VCO, and the depth of overtones is lush. Times this by three and you have something very special.

As well as the usual Saw, Square and Triangle wave outputs, the classic 'Shark

VCO is switchable, with the option to extend down to LFO range – although this might be considered one of the few drawbacks inherent from past years. The lack of dedicated LFO on the Model D was always an issue, but one that can easily be put right with the addition of another Eurorack module. The AJH VCOs sound outstanding on their own, but when stacked three times, some real magic happens. This begs the question, would you want more than one? Frankly, who wouldn't want three VCOs, to be completest in the quest for the Minimoog architecture; but in true Eurorack tradition, I also employed a single VCO against other oscillators in

 The **VCOs** sound **outstanding**, but when stacked three times, some **real magic happens** 

Keyfeatures

- Moog Model D modular recreation in Eurorack form
- Up to 7 modules required including 3 VCOs, 1 VCF, Dual Envelopes and VCAs, Glide/Noise module
- 3 VCOs, 1 VCF, Dual Envelopes,

Tooth' is also available, plus the usual modulation input options, such as PWM. There is a Sync option, too, along with a sync level control, under CV control. One slight issue is the user would need to feed each oscillator

a pitch CV independently, meaning a four-way patch bay or some stackable cables would be needed.

In my experience, there are very few Eurorack oscillators that plump for a switchable range potentiometer but, in keeping with its heritage, the Mini Mod

my Eurorack. The performance was outstanding, offering stability with a very short warm-up period of around 20 minutes, and held tuning exceptionally well, with solid calibration.

Tune in, filter out

We have already mentioned the integrated three-input mixer on the filter module, allowing the user to blend the oscillators seamlessly and, apart from this, the rest of the filter is exactly what one might expect; a Classic Moog

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➔ Transistor Ladder filter, at 24db/octave. This is the stuff of legends, and is as clean and elegant in sweep as it is brutal when resonated. One of my issues with the Moog ladder has always been the lack of bottom end, when the Emphasis (or Resonance) pot is cranked. One old trick that helped to alleviate this issue with the Model D, was to feed the headphone output back in to the audio input to create an overdrive loop. This can't be done with the Mini Mod, but AJH has included a jumper on the back of the filter circuit board which, when removed, will deliver a further 70% in VCF output level, mimicking the original Heath Robinson technique. It's a shame this isn't switchable from the front panel, although I imagine many synth heads will remove the jumper permanently. Certainly, the VCF becomes even more of an animal in this overdriven state, so

repeated gating will result in an increase in amplitude as the signal increases. The phases are snappy or long, at 10 milliseconds to 10 seconds, but, being based on the Model D, not as snappy as some other envelopes.

It's nice to have two envelopes in one module, although the lack of a full ADSR leaves you wanting. Even Moog eventually fitted full ADSR envelopes to its machines. However, there are plenty of other third-party options.

The Dual VCA is equally as colourful as the earlier sections of the synth, being a Discrete Cascaded design, but even this humble VCA has a trick up its sleeve. The timbral colour of this module is stunning in its default. However, it is also possible to remove a jumper from the circuit board, which will induce a tube-like harmonic distortion. This, in turn, offers an

▨ The care and attention that has been taken to make this filter sound like the original is clear ▨

much so that I would remove the jumper as a permanent fixture, as the resonance whistles to a state of distortion, introducing more colour.

Cut-off frequency and resonance are also available to CV control, allowing options for modulation, and there are also three fixed levels of key following, to allow the filter to follow the keyboard.

The care and attention that has been taken to make this filter sound like the original is clear. The starting point has been to use the same design, but there's an overwhelming sense that no stone has been left unturned with the oscillator and filter, which is key to this success.

Gating

The Envelope module, or 'Dual Contour Generators' as described by Moog, is faithful to the original concept, offering either an AD or ADS envelope pattern. Thanks to some clever engineering,

increase in gain, but the benefits that accompany it are huge. It would have been useful to have a switch on the front panel to implement this.

Noisy glides

The dark horse of the system is undoubtedly the Glide + Noise module, which, although largely a utility module, is one of the highlights. Apart from the white, pink and red noise output section of this module, the glide is the star of the show. The rate of glide is controlled by the pot on the front panel, along with two switches to initiate the glide and indicate direction. It is possible to select up, down or both. This proved incredibly useful, and is an addition to the original Model D circuit, on which this is based. The glides have a wonderful sense of shape and the addition of a direction switch adds a very useful dynamic.

These modules should not be considered soundalikes; they are far

Alternatives

With the release of the Moog Mother 32, that model is the obvious current alternative contender, although being single-oscillator based, the Mother 32 will not sound anything like as expansive as a complete Mini Mod system. Adding a Mini Mod VCO to a Mother 32, however, is a very enticing prospect. The Studio Electronics Modstar 5089 Filter is also based on the Moog transistor ladder filter, and will go part of the way to creating that classic Moog sound.



Above left: the outline of the AJH Mini Mod Saw Tooth, displayed on an oscilloscope. Very stable and sharp in definition

Above: The VCF in classic silver, with the three-input mixer, along with matching pots. Perfect for inputting three VCOs for that complete Mini sound

more accurately replicas and are incredibly similar to my memories of the Model D, bearing in mind that all Model Ds will sound a little different.

Putting the Model D comparison to one side, this is a huge-sounding set of modules that benefit from being a full set, although I found the VCOs especially outstanding nestling under my other Eurorack VCO/DCOs, in the way that so many artists have used Moogs before. The system sounds outstanding; full of analogue fatness, with plenty of harmonic overtones. Some may not want a complete Mini Mod system in their Eurorack, and thankfully the individual modules are available as separate components. These stand up exceptionally well with other Eurorack designs and will happily find a harmonic or utility-based role, without any fuss, but while making a difference, in a very positive way. **MT**

Do I really need this?

The most tempting issue here is how wonderful these units sound as a system, and with that comes the inherent price tag. However, if the complete system is out of your price range, I would heartily recommend looking at the VCO, VCF and Glide/Noise modules to integrate into an existing system. The VCOs, in particular, will combine beautifully with other analogue and digital modules, and will add plenty of analogue colour to your palette.

MT Verdict

- + Outstanding Moog sound
- + Sublime as a complete system
- + Greater flexibility than an original Minimoog
- + Excellent construction and build quality
- + Very stable in operation
- + Hand-built in the UK
- + Highly usable and desirable individual modules
- + Far cheaper than a second-hand Minimoog

- Envelopes (Contour Generators) lack the finesse of more contemporary designs
- Once tried, you may well want the whole system!

A hugely usable and colourful system that really comes close to the original Minimoog concept and sound.

9/10

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KUSH BY UBK Tweaker compressor

Gregory Scott's design is a fully-featured rackmount unit par excellence. **John Plckford** takes a look...

Compressors, in both hardware and software form, come in many guises. While some are so simple that they feature little more than a gain reduction control, others are more multifaceted. The Kush Tweaker is firmly in the latter camp, with all the controls you would expect to find on a fully-featured compressor, as well as several other unusual and useful controls.

While many designers aim to recreate the sound, and often the look, of vintage compressors from the 1960s and 1970s, designer Gregory Scott set out to design a single unit that could faithfully mimic the behaviour of several classic designs, as well as offering its own varied styles of compression. The Tweaker offers everything from the smooth glue of an API 2500 over a mix buss, through to the full-on 'all buttons in' smash of a Urei 1176 limiter.

The Tweaker is a 1U, 19" rackmount unit that offers one (mono) channel of dynamics control. Provision is made for a second unit to be linked for precise stereo operation, which is useful as many users will want two units to take advantage of the Tweaker's superb dynamic control capabilities on mix busses and other stereo sources.

The front panel controls consist of eight 21-step pots, making precise recall of settings quick and easy. These controls are augmented by a six-position rotary switch and three push knobs. The familiar options

include attack, release and threshold, while other controls are more specific to the unit's unique features. For example, the curve knob behaves as a combined ratio and knee control, starting with a 2:1 soft knee characteristic and going all the way up to 30:1 hard knee limiting.

Let's take a look at some of the Tweaker's more interesting features. The first three controls comprise drive, mix and output. The drive knob is not a simple input gain, rather it affects the signal level going into the VCA (Voltage Controlled Amplifier). At modest settings, the unit provides a clean

musically without losing any of its attack and impact.

The mix and output controls are designed to work together to create an unusual take on parallel compression. The output control alters the amount of post-VCA signal sent to the mix control; it's not a simple overall output level for the unit. It takes a bit of getting used to but pays dividends, as you can control the unit's output while preserving the wet/dry balance of your processed signal. The next control in sequence is threshold which, as with any compressor, determines the point at which compression begins. A simple

Gregory Scott set out to design a unit that could **mimic several classic designs**

signal with minimal distortion, while dialling in more drive produces more dirt and grunge.

One of the problems that arises from distortion generated by conventional input gain controls is that the transients can be blunted, robbing the signal of its punch and presence. The Tweaker's drive control behaves differently, so that when the heaviest compression is applied, usually on transients, less distortion is generated, allowing the signal to saturate

LED is provided to indicate when the input signal crosses the threshold, remaining illuminated until the signal falls below the threshold.

Now for the section of the Tweaker that really sets it apart from any other compressor we've encountered, the Sidechain Shaper. This is a series of filters, appearing on a rotary switch, which determines the parts of the signal to which the Tweaker will respond. The first two options are high-pass filters set at 60Hz and 300Hz →

Details

Manufacturer
Kush by UBK
Price **£1,320**
Contact **Unity Audio**
01799 520786
Web **www.thehouseofkush.com**

Key features

- Unique Sidechain Shaper
- Parallel compression mix control
- Combined ratio/knee control
- Dual release option
- External sidechain insert
- Innovative I/O/GR Tri-Meter

→ respectively. The 60Hz setting is the sort of HPF found on many compressors, allowing compression over a wide audio band while ignoring subsonic frequencies that may cause unwanted pumping artefacts. The 300Hz setting is useful for full-bodied sounds, such as lead vocal tracks and acoustic guitars, which can benefit from some dynamic control in the upper registers, while retaining the character and warmth of the low-mid frequencies.

The Treble Smash setting is an altogether different beast. Designer Gregory Scott was inspired by inserting the distinctive Kush Clariophonic HF shelf-boosting EQ into the sidechain, resulting in an effect that gently rounds off the top end in a way similar to analogue tape. This feature is excellent for rescuing harsh, brittle audio in the upper-mid and lower-treble regions, where the ear is most sensitive. In this mode, the Tweaker tames the aggression while imparting a nice glossy top end. Of all the Sidechain

Alternatives

We are not aware of any other hardware compressor that is capable of the numerous compression styles that the Tweaker offers. One of our recent favourite compressors is Warm Audio's WA76 (£499), which is a faithful recreation of the legendary Urei 1176 limiter. Often used as a vocal compressor, its classic 'all-buttons-in' mode also provides a heavily smashed sound.

input, output or gain reduction readings in dBs, instead using a green, yellow and red display to show how hot the signal is or how much it's being squeezed. In fact, none of the controls use numbers to indicate levels or response times. You just need to know that with, for example, attack and release, counter-clockwise is fast and clockwise is slow. This is no bad thing, as it encourages engineers to listen rather than try to dial in familiar settings. There are many of us who believe there is far too much visual distraction in modern sound recording; your ears should tell you everything you need to know. As the legendary producer Joe Meek once said: "If it sounds right, it is right."

We spent a great deal of time with the **Tweaker** and were astounded at its versatility

Shaper presets, Edge Contour is the most distinct; it has its own pot to the left of the shaper switch. This is an extremely powerful tool, utilising both high-shelf and low-shelf filters working in tandem – so, as one shelf rises, the other falls.

Defining the way the compressor 'sees' the incoming signal enables the creation of a multitude of effects. For example, by subtly boosting the LF information from a drum or mix buss, the gentle pumping effects can embellish and even alter the groove of the track. Clever stuff. In addition to these shaping effects, the Tweaker also allows for the insertion of an external sidechain unit, such as an equaliser, so that you can create your own preferred tailored compression.

Of course, all of this dynamic control needs to be monitored, and the Tweaker's LED meter is yet another unique feature. The proprietary Tri-Meter is like no other, showing the input signal, output from the unit and gain reduction simultaneously. It takes a little getting used to, however once mastered it allows quick assessment of what is occurring within the unit. That being said, the meter does not show

We spent a great deal of time with the Tweaker in order to get to grips with its many functions and were astounded time and again at its versatility. Everything from the gentlest, transparent levelling to full-on curve-bending squelch was achieved. We even strapped the single-channel unit over a stereo mix buss, first processing the left channel then, using identical settings, the right channel. This certainly isn't an ideal arrangement, because all sorts of phasing issues and other nasties could arise. However, the results were superb with no unpleasant artefacts.

Don't be fooled into thinking that the Tweaker's wide range of styles and applications makes it a jack of all trades, it isn't. Rather, it's a master at recreating the behaviour and characteristics of many highly-rated designs. And like many of those designs, it possesses a lovely musical heart, so that just by simply running audio through the unit, with little or no processing, your signal will gain some euphonic enhancement.

We have just one slight gripe: our review unit arrived with one of the control knobs detached from its

spindle, and although the unit feels good in use and utilises excellent internal components, it doesn't look or feel as bomb-proof as many other pieces of hardware we've used. The coffee and cream colour scheme is a matter of personal taste; however, it does contribute to the rather plastic look of the unit.

Aesthetics aside, the Tweaker is a remarkable unit capable of a multitude of dynamic effects. This is no fit-and-forget compressor, so users will benefit from spending some time getting to know exactly how powerful and diverse it is before putting it into professional use. We were dazzled by the vast range of compression and limiting styles on offer. Most often, one unit will excel at certain types of dynamic control, while falling flat at others. The Tweaker not only does every style of compression you can possibly think of, it also does them all brilliantly.

In use

For a great vocal sound, try the Tweaker's take on the classic Teletronix LA2A leveller. Dial in a good level of drive – about 75% – and set the mix to fully wet. With the threshold set at 2 o'clock, use the unit's unique edge contour, notching it one step to the left of its central (flat) position. Set the attack control to medium-fast and make use of the unit's dual-release option, which gives a fast release initially, followed by a more relaxed release. The result is lovely, transparent vocal levelling with plenty of presence. **MT**

MT Verdict

- + Many compression styles available
- + Unique sidechain shaper
- + Original and funky meter
- + Good quality internal components
- + Powerful dynamic control

- Maybe too quirky for some
- Less than solid build quality

The Tweaker is without doubt the most versatile hardware dynamics processor we've yet encountered. Its ability to provide gentle, transparent compression on the one hand and dirty, pumping signal shaping on the other is quite dazzling. The amount of user control on offer is astounding and its ability to mimic the compression styles of well-loved compressor/limiters is uncanny. A master compressor in every sense.

9/10

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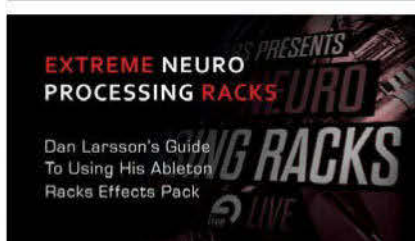
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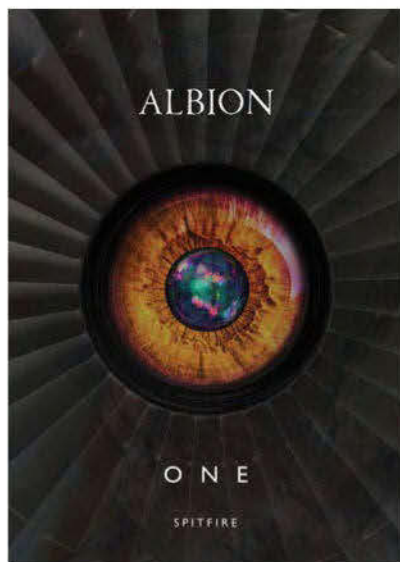
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MUSIC KNOW-HOW



SPITFIRE AUDIO Albion One



As always, Spitfire's take on cinematic orchestral music has a uniquely British flavour. **Keith Gemmell** waves his Union Jack

When the first version of Spitfire's Albion appeared back in 2011, it caused quite a stir. Until then, Project SAM's Symphobia ruled the roost when it came to orchestral sample libraries developed specifically for cinematic productions. Albion went on to become a best seller and Spitfire followed up with numerous string and orchestral libraries, gaining valuable experience in the process – so much so that it decided to revisit the Albion concept and record a new, improved version, rather than just updating it. The orchestra was larger this time round (109 players) and more articulations were captured, along with a host of string runs. The Darwin percussion was also re-recorded, and the Brunel loops and evocatively named Stephenson's Steam Synth were redesigned. It's all new material, but those patches that couldn't be improved upon are tucked away in legacy folders.

All together now

As with the original library, Albion One provides a broad brush approach to composing with a sampled orchestra. Instead of individual sections, they're combined – high strings, low strings, high brass, low brass and so on. Although this works well with strings and brass, combined woodwind sections with instruments of very different timbres lumped together can, at times, sound a touch organ-like. Nevertheless, this approach is ideal for sketching out arrangements quickly, something that Spitfire was keen to emphasise in the original version. Because Albion is so good at providing powerhouse orchestral sounds, though,

Details

Product Albion One
Publisher Spitfire Audio
Price £383
Contact via website
Web www.spitfireaudio.com

many composers working to a budget have used it in their final productions.

The GUI has been redesigned and the controls and text are much easier to read. The Ostinatum, a brilliant tool for generating repeated rhythmic patterns, is still there and a new 'lush verb' slider has been added for extra reverb. And for those who don't care for setting up and adjusting the four microphones, an easy mix solution has been added with a simple close and far slider.

Lush strings

The string ensembles are great: smooth, full-bodied and, when required, pretty powerful – especially the low patches. Link them to the Ostinatum and exciting action-style ostinatos can be conjured at the drop of a hat. All the important articulations required for film scoring are present, along with a comprehensive set of string runs. These are nothing short of spectacular, with high and low major and minor ascending and descending versions between one and three octaves.

The brass ensembles are pretty nifty, too. Articulations, though, are limited to long and short with full-blown 'nasty' versions. This is probably all that's needed for the general broad brush approach of this library, and ideal for epic scores, where the finer details of orchestral playing are not much used.

Woodwinds, on the other hand, are used more sparingly in modern film

scores and usually reserved for quieter passages. Like the brass, articulations are limited to longs and shorts, with two versions – one with the various instruments of the ensemble popping in and out according to their playing ranges and another 'arranged' version with octave doubles and so on for a fatter sound. However, considering the importance of woodwind runs in some film music, a selection would be useful.

EARTH works

There's a mass of non-orchestral material available in Brunel Loops and Stephenson's Massive Steam Synth. They both contain a huge array of presets and are powered by the eDNA engine, EARTH, which features two independent mini synths/sample players working in tandem producing

Key Features

- Recorded to 2-inch tape (Air Studios)
- Large orchestra (109 players)
- String runs
- Large percussion ensemble (Darwin)
- Organic synth (Steam Synth)
- Dynamic loops (Brunel Loops)
- eDNA engine

Alternatives

Project Sam's Symphobia series of libraries are probably the closest match to Albion One. Symphobia 1 was released some time before the original Albion and remains a bestseller today. The entire series was recorded in a famous Dutch concert hall using two microphone positions, stage and close. It, too, focuses on ensembles, with a rich selection of orchestrations and articulations.



1 DARWINIOUS MAXIMUS
Cinematic percussion is well represented in the Darwinians Maximus section with "some of the largest drums in London", according to Spitfire Audio. Some are recorded in sections, some solo and some hyped up for blockbuster-style productions. Patches include a Percussion Ensemble, Hyper Toms, XXL Percussion and our favourite, Easter Island – a collection of truly thunderous and menacing hits. Glorious stuff.



2 BRUNEL LOOPS
Top percussionist Paul Clarvis recorded hundreds of raw and warped loops for the Brunel Loops patches, playing a collection of oddities such as chopsticks, egg poachers, clay pots and the amusingly titled Ex-wives Bones. Three dynamic layers are available and can be easily crossfaded.

sounds that are then further processed with an array of synth controls and effects racks. The presets sound great out of the box, but if you're into tweaking you'll have a field day. However, modifying them and creating your own sounds is a complex process



3 STEPHENSON'S STEAM BAND
Pads, drones, atmospheres, effects and so on, can all be found in Stephenson's Steam Band – a collection of 'synth' presets programmed using Albion's new orchestral samples as source material and driven by Spitfire's eminently tweakable eDNA engine. This one is the Miners Choir – definitely not the kind of Welsh choir that you may have heard Harry Secombe fronting.

and requires a good deal of manual reading and practice.

Albion One is a big step up from the original version. It's intuitive and yields gratifying results at surface level but if you want to, it's possible to dig very deep with the eDNA synth engine. **MT**

Do you really need this?

The idea behind the original Albion was to provide a sketching tool for cinematic orchestral mock-ups. It still fills that role admirably although with the new expansive high-quality content, it's bound to find its way into many a finished product. It's that good. For serious orchestration, though, its broad brush approach of just high and low sections is inevitably limiting, and if you intend scoring for real players a fair amount of orchestration work will be necessary after sketching things out.

MT Verdict

- + Improved GUI
- + Lush strings
- + Powerful brass
- + Organic loops and pads

- Woodwind runs would be good.
- Web-based manual sketchy in places.
- No solo instruments
- No individual sections

When it comes to all-round cinematic orchestral sample libraries few can match Spitfire Audio's Albion One, which provides lush strings, powerful brass, thunderous percussion along with a huge variety of organically derived loops and synth pads.

9/10

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Details

Price V13 Box Mini DI (£39.99)
 V15 Tone Shaper (£36.99)
 V17 Singing Auto Wah (£42.99)
 D3 Duet Looper (79.99)
 XV19 Power Supply (49.99)

Key features**V13 BOX MINI DI**

- XLR balanced or 1/4" unbalanced output
- Ultra-low distortion
- On/off cabinet simulator switch
- Ground lift function
- 20dB/0/+20dB gain settings

V15 TONE SHAPER

- Two-band equaliser
- 2x multi-pole sharp cut-off filters
- Up to 6dB gain
- Lows/highs/level controls

V17 SINGING AUTOWAH

- Double peak envelope sweep filter
- Quick auto-reset envelope
- Slow/fast toggle switch
- Sensitivity/sustain/depth controls

D3 DUET LOOPER

- Stereo dual-loop looper with Verse/Chorus modes
- 2x series mode separate loops, each with max length of 5 mins
- Undo/redo mode
- 1x 5-minute loop with undo/redo
- Capable of Record, Play, Overdub, and Record, Overdub, Play for ambient loops
- Stereo 44kHz 24-bit audio
- Capable of interfacing with instruments and line level equipment
- Flat frequency response down to 10 Hz
- USB port for firmware updates and upgrades



XVIVE

Digital Series micro effects pedals

Xvive's Digital Series stompboxes are not just for guitarists, and will find a wealth of uses in your studio. **Marcus Leadley** puts these mini tone shapers to the test

Xvive is an interesting brand that's rapidly expanded its product range since launching in 2012. Set up by a team with design experience for Electro-Harmonix and Pigtronix, the company's been hitting the budget end of the market very hard with sturdily built, well voiced units. One way it's achieved this is to major on the contemporary mini-pedal format. The Analog Series boasts 21 models, plus a neat little multi-power supply unit; Xvive units are too small to take a classic 9V battery. While many of the units are aimed at guitarists, several would make great additions to any producer or engineer's bag of tricks. We've picked four of these little beasts – and together they take up about as much space as a small lunchbox.

V13 Box Mini DI

While most contemporary mixers and soundcards will handle a high-

impedance/low-level signal of the type generated by magnetic pickups and then transferred over an unbalanced line, it's never a particularly good idea if you're aspiring to a decent tone – either

unbalanced out on a standard TS 1/4" jack, so you can still use the DI's features even if you're connecting to an unbalanced interface or a retro home studio set-up.

The company's been hitting the market very hard with sturdily built, well voiced units

live or in the studio – especially if you need to run long cables. All contemporary modelling software responds far more realistically to an optimised signal. This nifty little DI offers a balanced out (XLR), a three-position gain control (flat/-20dB/+20dB), a ground lift switch and a Cab Simulator switch. There's also an

In use

Even without engaging the cab simulator, the Box Mini DI improves the basic clarity of a guitar's sound: the top end is clearer and the bass richer and more proportionate. The cab simulator isn't too invasive; however, it cleans up a signal nicely, brightening the mid and upper frequencies while allowing the

→ bass to round out nicely. All the midrange muddiness is gone and the performance sounds much more live and amp-like. The impact of using the unit with a bass is positively exciting: going direct to the desk, the instrument sounds flat and midrange-y. Via the Box DI, it actually sounds like a bass! Engaging the cab simulator tames the low frequencies, allowing a more percussive mid/high character to shine through. So there are basically two great bass sounds lurking in this itty-bitty box. Xvive highlights the unit's ultra-low distortion credentials, and clarity and definition are never an issue if you engage with the signal chain in a professional manor.

subtly, and the circuit sounds transparent and musical. This is particularly useful for creating dub bass undercurrents, and also for sharpening up the slap characteristic at the other end of the spectrum. Turning to guitar, the Tone Shaper's gain boost potential becomes apparent in the performance arena, as lifting the Highs and Level controls immediately gives you the 'amp to 11' factor for solos. Even with all the controls maxed out, it's pleasing to hear that the Tone Shaper introduces very little noise to the signal path. In the studio, the combination of Box DI and Tone Shaper worked brilliantly with Peavey's ReValver and Avid's Eleven plug-in. However, it is a

In-use tip

One advantage of low-cost effects pedals with small form factors is that you can create miniature pedalboards (for floor or table-top use) and mix and match effects/effect order to prompt creative thinking. Indeed, Xvive produces the neat little F1 flightcase (£39) to help you organise them.

I describe it; there's a raspy, buzzy analogue character underpinning the delivery and single notes that are left to hang sound as if they are being 'unzipped'. The filter seems to respond quite slowly to the initial signal, so there is a kind of post-emphasis from which the sweep kicks in. Depending on how you adjust the unit, this effect is more or less enhanced. This works very well with old drum machines, percussive loops and regular rhythmic guitar parts, but less well with fast funky bass, rapid lead guitar or melodic synth playing. It is also a very effective way of 'drifting' big chords across the soundstage, where automated panning enhances the reptilian character of the effect.

Lifting the Highs and Level control immediately gives you the 'amp to 11' factor for solos

V15 Tone Shaper Equaliser

The next pedal on the slab turns out to be the perfect companion for the Box DI for the bass session in progress. Unlike some more complex graphic pedals, this offers just three controls: one labelled Highs, one labelled Lows and a general Level knob offering a healthy 6dB boost should you need it. The V15 is essentially a tone booster, as you can't select and cut frequencies.

In use

With just two controls, you can massage your sound very intuitively. The unit (as with all these Xvive pedals) is true bypass, so when it's switched out there's no signal loss or colouration. Setting Lows and Highs to their minimum settings (fully counter-clockwise) and Level to about 2 o'clock gives you basically the true-bypass tone – but with the unit activated. From this point, you can tweak tone very

good idea to turn off the DI's cab simulator function, where modelers offer similar functions.

V17 Singing Auto Wah

Auto wahs, sometimes referred to as envelope filters or envelope followers, have been around since the 1970s. While the basic circuit isn't a complex one, every model responds differently and has its own sound. Xvive goes big on the V17's original tone – and, indeed, it has got stand-out characteristics. The unit boasts a double peak envelope filter sweep and the combination of Sensitivity, Sustain and Depth controls offers a great deal of flexibility. There's also a Fast/Slow mini toggle switch, which controls the temporal arc of the overall effect.

This pedal sounds very different from, say, an Electro-Harmonix Q-Tron. The sound is less classically funky and potentially a lot darker. 'Snakey' is how

D3 Duet Looper

And now for one of the first pedal releases in Xvive's new Digital Series! There's a lot compressed into this mini looper pedal; you can record up to five minutes of high-quality audio (44kHz/24bit) and you can switch from a single overdub mode with an Undo/Redo function into a sequential A/B Verse/Chorus mode. The D3 can function in both mono and stereo modes, so it's an ideal little studio tool with a range of applications, as well as a cool gizmo for live work. It looks deceptively simple; all you get is a mini toggle switch to change modes, with two status LEDs, a Level control for the loop volume and a trim switch.

In use

In order to get to grips with the Duet, you need to learn a range of short taps, double taps and press-hold operations. These can cause different things to happen, depending on whether the LEDs are glowing red, purple or blue, whether they are pulsing slowly, quickly or are solidly illuminated, and which mode the pedal is in. The single-sheet manual that comes with the unit does its best to explain everything, but frankly I want an online video tutorial!

Alternatives

If you're looking for an alternative mini DI, the Miktek DI 1 (£35.99) runs on a 9V battery or 48V phantom power – no onboard cab simulation, however. If you need a more fully featured graphic equaliser, the Boss GE-7 (£59) is a bit of a classic that can do some pretty radical tone shaping. If you're looking for a small but funky autowah, the Electro-Harmonix Micro Q-Tron (£89, but often discounted) fits the bill very nicely. Finally, if you fancy a micro looper and can trade off stereo/dual mode operation for longer recording time, the Mooer MML1 Micro Looper (£74.99) will record 30 minutes of high-quality sound.

Ultimately, I gave up reading (lines such as “Generally, a long hold where a short one would have done, means do the short operation, but also switch to the other loop at the end of this loop” send my consciousness off down a long dark tunnel...) and went with a more hands-on trial and error approach.

create a lot of variation along the way. Get your timing right and you can easily run different loops at different times in a song, so there's a lot of creative potential. And having stereo operation is great, as you can work with a wide range of hardware synths, instrument plugins, outputs from stereo effects

▨ The D3 is an ideal studio tool with a range of applications, as well as a **cool gizmo for live work** ▨

Thankfully, the Duet proves to be easier to learn than to explain. Once you have the basics under control it's a lot of fun, and the way it schedules the Undo/Redo of layers to the beginning of the next loop is unique – so you can

pedals or a laptop. To work in stereo, however, you will need a slightly unusual cable that combines mono outputs into a single TRS ¼" stereo pedal input jack. The Duet itself has stereo outputs. **MT**

MT Verdict

- + Excellent sound quality
- + Small form factor
- + Many options to choose from
- Don't run on batteries
- Don't have many controls for extra tone tweaking

Xvive's comprehensive range of mini pedals is a well thought out collection. The individual pedals aren't expensive and all the units on test perform well and sound great. The Box Mini DI and Tone Shaper have many studio and live applications, and the Singing Auto Wah encourages you to write exciting parts. All these pedals, with the exception of the Duet Looper, were extremely easy to use. The Duet takes some getting used to, but the sonic results are certainly worth the effort.

V13 Box Mini DI **9/10**

V15 Tone Shaper **9/10**

V17 Singing Autowah **8/10**

D3 Duet Looper **8/10**

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IZOTOPE Ozone 7 & Ozone 7 Advanced

iZotope is back with a big new update to its Ozone mastering suite featuring a host of new retro modules. **Alex Holmes** gets vintage...

We're big fans of iZotope's all-in-one mastering software, and it gets used to some degree on every track I produce. Ozone is well known for its precision tools, but perhaps less so for adding some analogue-style warmth to your masters. In version 7, however, the boffins at iZotope have set their sights on crafting some new vintage modules based on a range of classic outboard kit, along with plenty of new features to fill out the package.

Vintage chic

Whether you opt for the standard or Advanced versions, you'll get the usual crop of excellent processors, including EQ, Dynamics, Imager, Exciter and Maximizer modules, available as either plug-ins or standalone software. Additions to the standard version include the Dynamic EQ module from Ozone 6 Advanced, the new Vintage Limiter module, a new IRC IV Maximizer algorithm and MP3/AAC export. The Advanced version adds Vintage Tape, Vintage EQ and Vintage Dynamics modules, plus an mp3 codec preview feature; and like previous editions, also

Details

Kit Ozone 7, Ozone 7 Advanced
Manufacturer iZotope
Price £169, Advanced £339, upgrade from Advanced 1-6 £135
Contact Time+Space 0183755200
Web izotope.com
Minimum system requirements
Windows: 7, 8 & 10
Mac: OSX 10.8-10.11 (Intel only) RTAS, AudioSuite, 64-bit AAX, VST 2, VST 3, Audio Unit

Key Features

- All-in-one mastering software
- Plug-in or standalone
- New algorithms and Vintage modules
- New IRC IV Maximizer setting
- MP3/AAC export and Codec Preview
- Advanced also includes Insight metering plug-in

comes with separate plug-in versions of each processor, plus iZotope's metering suite, Insight. The GUI retains its crisp, modern finish, which allows you to easily drag and rearrange the order of the modules. Most modules have the option of running in M/S mode, and there's a comprehensive set of global and module presets.

Winter warmers

There are plenty of new algorithms, but how do they sound? The Vintage Tape is based on a Struder A810, with controls for input drive, bias, speed, harmonics, low and high emphasis, and it can be used to add satisfying crunch. The Vintage Compressor has a feedback design that's inspired by several classic compressors, with a slightly more distorted sound and an excellent, flexible sidechain with three filters. Although it might not match the authentic tube smoothness of the UAD version, the Pultec-inspired Vintage EQ module is a phenomenal tonal shaping tool, and having a graph to show the unique filter shapes, plus the ability to run in M/S and L/R modes, makes it one of the most flexible Pultec clones.

Alternatives

IK Multimedia's T-RackS Grand (£479.99) features a bigger collection of modeled classic hardware, while the Lurssen Mastering Console (£239.99) has a streamlined approach. Alternatively, you could go with the Fab Filter Mastering Bundle (£319), which has only four plug-ins, but they're all phenomenal.

The new Vintage Limiter offers Analog, Tube and Modern settings, and is based on a Fairchild 660/670. Like all of the Vintage modules, it helps expand Ozone's sonic palette and provides a warmer, more saturated alternative to the more clinical Maximizer algorithms. Speaking of which, the new IRC IV features Modern, Classic and Transient modes and is capable of squeezing even more volume out of your tracks. It does this by dynamically analysing the loudest frequencies that are most likely to cause distortion and reduces them before they hit the processor. This worked its magic on some tracks, helping to give a more even sound, but on others it changed the balance too much, so we decided to revert to IRC III. Finally, the Codec Preview allows you to hear what your master will sound like at different compression settings.

Tools in the box

iZotope has put a lot of work into this update and it will add more tools to your arsenal. Frustratingly, three useful things that were removed from version 5 – the ability to load saved reference curves into the EQ, the Reverb module and the gate in the Dynamics module are still absent. However, this is a minor niggle – and with the new features in both versions, and reduced price of Advanced, there's never been a better time to add Ozone to your plug-in list. **MT**

MT Verdict

- + Easy to use, clean GUI
- + Stacked with features
- + New modules sound great and add flexibility
- + Advanced version now better value

- Vintage modules a little visually under-stimulating
- Please bring back the reverb module, gating and reference curves!

After the slightly luke-warm Ozone 6, iZotope has come back fighting with an extensive update that includes some excellent new features, modules and algorithms. Ozone 7 sounds better and is more flexible than ever.

9/10



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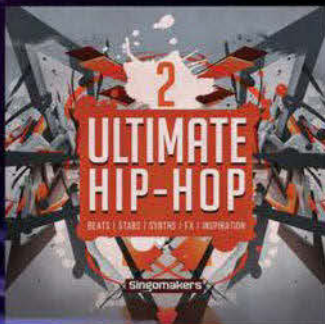
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Web **www.brightspark.movie**

As I write this, there's a growing hysteria (OK, on Facebook) that too many famous musicians are dying on us. Of course, they aren't – we are simply in an age when our icons are *of an age*. But spare a thought for the people behind the gear behind the music, those who won't be known for creating the albums but should be given a huge amount of respect for the tech behind them. Bowie's *Low* – just one example – probably wouldn't have been anywhere near as good, for example, without some of the individuals interviewed on *Bright Sparks*. These include Alan Pearlman from ARP, Herbert Deutsch (co-inventor of the Moog synth), John Bradley (Mellotron) and Peter Zinovieff (EMS). These people created the synths and keyboards that made some of the finest music in history. The band I Monster, backed by Dave Spiers and



Excellence
10/10
MusicTech

Key Features

- Documentary featuring interviews with music and technology pioneers
- Features people behind Moog, ARP, Mellotron, Buchla, and more
- Comes with I Monster album

Chris Macleod, produced the film over years of tracking down the men behind the machines, and it's resulted in one of the most poignant works you will see for so many reasons. The first is, as I have hinted at, many of these engineers are reaching their later years (ARP designer Dennis Colin died after filming). Secondly, many of them were far better at creating music technology than they were business empires – and all the better for it – so had to wait many years for the plaudits (and money) that they deserved. Lastly, we are in a new rush of hardware synthesis, a new dawn of hands-on music machinery. NAMM 2016 was all about the machines that these men created, and that makes this film even more important. It's a living and lasting

documentary – one that will be expanded and extended by Dave, Chris et al – and one that we should all treasure. Anyone interested in music and technology in any way should watch this and enjoy. Ignore the lack of too many edits – these enforce the rich humanity behind the electronics. In a world obsessed with money, these were people obsessed with something far more important – and this is their lasting document. **MT**

MT Verdict

An incredible living documentary about the pioneers behind the gear we use. If you like music machines (or great human beings) get it.

10/10

Yeti Whiteout

Manufacturer **Blue Microphones**

Price **£99.99**

Contact **via website**

Web **www.bluemic.com**

We looked at Blue Mics' Snowball Black ICE last month – a great-value USB condenser mic. The Yeti Whiteout is its larger cousin – much larger: twice the weight and very robust. You get four polar patterns too, so it can handle a variety of recording situations, and it sounds as good and is as easy to use as the Snowball. It's twice the price, yes, but that still means it comes in at just under a ton, so if you are on a budget and want a good all-round USB then this is for you. The only drawbacks are that the polar pattern dial is a little difficult to switch (not something you might be doing that often) and you'll need a pop shield and strong arms. Otherwise, a neat and robust USB mic solution. **MT**



Key Features

- USB mic
- 4 polar patterns
- Weight: 1.6kg
- Comes with tripod stand (built in) and USB cable

MT Verdict

Solid – damn solid – good sounding and flexible. With a stand built in, just add a pop shield and you're there.

8/10

Creative Woof 3

Manufacturer **Creative**

Price **£29.99**

Contact **Creative**

T: 020 8208 9930

W: **www.uk.creative.com**

Bluetooth speaker manufacturers, particularly Creative, are getting cleverer in their designs. A few months back, we had one in the shape of a red Lego brick and now this, a single speaker that fits in the palm of your hand. The Woof 3 sounds a lot like a small speaker, – it won't be loud enough for partying – but bass is surprisingly actually present. Setting it up is a dream – it gets picked up and you pair it with your phone, computer or whatever. We had it running with Logic in no time, although there is an inevitable latency. Using the SD card to play files is hit and miss too (no screen to select files), so just use it as a great mobile speaker. **MT**

Key Features

- Wireless Bluetooth speaker
- Operating range: 10m
- Takes SDHC card (32GB max)
- Dims (mm) 65x68x75
- Weight 236g



MT Verdict

For the size and price, it's about as good as it gets for listening or composing on the move – not intricate mixing and monitoring though...

8/10

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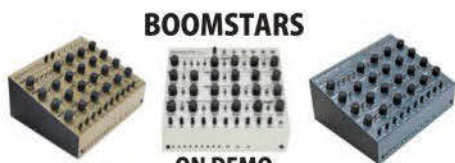
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API 1608 ON DEMO

Logic backlit keyboard

Manufacturer **Editors Keys**

Price **£99.95**

Contact **via website**

Web **www.editorskeys.com**

Our Live expert Martin Delaney reviewed the Live version of the Editors Keys Backlit Keyboard with mixed conclusions: a good idea in principle, but said that Live is simple enough not to require so much help and extra flashing lights.

Now, though, we're talking about Logic, which is a tad more complex. We're also talking about a reviewer – the editor of this magazine – who is drawn in by lights and has fading eyesight, so it would seem that this Logic version of the Editors Keys Backlit keyboard might well fare better...

First up we do like the look of the thing. Music gear is going through a huge shift in terms of its looks and appeal at the moment, with companies realising that people want to look as if



Key Features

- Full size backlit keyboard specifically for Apple Logic (Live one reviewed – other software title keyboards are available)
- Plug and play (via two download apps)
- USB powered and lit
- Back lighting is optional (you can switch it off!)

they make music rather than being for writing emails, so this fits very nicely into that new ethos, and it's another part of your studio that has become brightly lit and colourful after all those racks and synths.

Getting it up and running was also pretty easy: just download a couple of applications from the website; not even a restart is required. We were up and running and the advantages soon become clear, especially if, like me, you don't like your studio brightly lit. In this case, the keyboard is genius; I was zooming around the screen, opening

screensets and using a lot more features than I normally would in the software, which has to be a good thing, right? Coloured keys (red for Cmd, for example) are clear and everything is visible and easy to see. Caveats as ever, though. This thing definitely works best in the dark. Great for me – I have a studio tan like a skeleton, but is that for you? Secondly, you will find yourself reaching for the mouse as much as ever, and I can't help thinking that a nice flashy mouse with extras would complement the package. Otherwise, it's yet another better way of controlling Logic while we (OK, I) wait for Apple to finally do the touchscreen version... **MT**

MT Verdict

You'll still reach for the mouse, but it helps open up Logic well (and looks great in the dark).

8/10

iRig Keys 37 Pro USB

Manufacturer **IK Multimedia**

Price **€120**

Contact **via website**

Web **www.ikmultimedia.com**

We're just back from NAMM, and the IKM press conference there was one of the most packed of the show such is the company's assault on the music production world with product after product for the mobile and budget musician. We'll be covering some of those new releases soon – including the 'smallest studio monitors in the world'; but until then a quick catch-up and we've finally got our hands on the iRig Keys 37 Pro USB.

First impressions are pretty good, because in a world of keyboards currently dominated by mini keys – and lots of angry players because of it – this keyboard manages to cram full-sized keys into a very small footprint. OK, there's not much else going on: an assignable volume rotary knob, Octave and Program up and down buttons plus



Key Features

- 37 full-sized keys
- Pitch and mod wheels
- USB class compliant (Mac/PC) – plug and play technology
- Powered from the Mac/PC USB
- Free Mac/PC virtual instrument collections for SampleTank 3 plus SampleTank 3 SE
- USB cable included
- Size (mm): 635x230x90
- Weight: 1.59kg

four Set locations. These are to store up to four keyboard set up settings (MIDI channel, button assignments and so on), and while four is good, obviously more of these would have been handy (tease us, we want more!).

The keyboard is very playable, but by no means absolute top quality, but it is certainly good for the money and better than some models costing a lot more, or with smaller keys. The build quality of the unit is OK, a bit lightweight maybe, but getting it up and running with our DAW was probably the easiest plug n play experience we've had. No drivers to load, plug it in and, well, play!

As ever, the software package with these things is good – especially as you get a choice of five instrument

collections. And after playing iRig Pro 37 for a while during our tests, we think it is a good buy, but there are marginally more expensive keyboards from Alesis that will give you a bigger playing experience and marginally cheaper ones with mini keys to give you a more mobile one. IK thinks it has filled a gap in the market, then, although we can't help thinking that proper 'players' might be willing to forego mobile and just go big. As ever, you will decide... **MT**

MT Verdict

It does fill a gap in the market – big keys, small footprint – but might just fall between stools.

7/10

Aiaiai Modeselektor Edition

Manufacturer **Aiaiai**

Price **€250**

Contact **Aiaiai via website**

Web: <http://aiaiai.dk>

We love Aiaiai headphones, particularly the straight TMA-2 Studio model. The modular nature of these allows other phones of different configurations to be produced, and there are now artist editions available. As fans of uber producers Modeselektor, we like the look of this limited edition model, complete with MS logo on the earpiece as shown. They are out-and-out bass headphones, so loud and proud to be bottom-heavy – don't expect great and accurate mixing, but for listening back to your work or indeed the 'Selektor, these are choice headphones. While we don't

- Key Features**
- High isolation
 - Modeselektor carry pouch
 - Impedance: 32ohms
 - Weight: 238g
 - 1.2m cable and adaptor



recommend buying anything just for a cool aesthetic, we are tempted by these anyway. **MT**

MT Verdict

Not for accurate mixing (nor do they claim to be), but these have a great low n loud sound.

8/10

The Great British Recording Studios

Publisher **Hal Leonard Books**

Price **\$29.99**

Contact **via website**

Web www.halleonardbooks.com

Trust the Americans to make such a great job of writing a book about the golden age of UK studios. We're somewhat annoyed that no one asked us, as we seem to have visited just about every one (of those left). There's a lot of detail – technical, floorplans, etc – on each, with more space dedicated to those you might expect (Abbey Road, Olympic, Trident, AIR, etc). We love the depth, with personnel lists, stories, gear lists (yes!), diagrams and even acoustic treatment details. There are photos, of course, and details of the famous recordings. We'd have loved local favourite Real World to have had a

Excellence
10/10
MusicTech

- Key Features**
- Details on at least 30 studios
 - In-depth on 12
 - Includes tech glossary
 - Layouts, gear lists, quotes, loads of additional info!



chapter, and it's depressing that so many are now not with us, but the effort and research that went into this is extraordinary. An excellent geek and gear-fest of a read. **MT**

MT Verdict

It's a book that will become one of the most used in the MusicTech library. An excellent and thorough read.

10/10

Teeel Presents - Retro Wave

Publisher **Loopmasters**

Price **£24.95**

Contact **info@loopmasters.com**

Web: www.loopmasters.com

Retro Wave sees producer Jim Smith (aka Teeel) delve into his large collection of analogue drum machines, including instruments from Roland, Simmons and LinnDrum, plus Yamaha DX7, Yamaha CSX1, Roland HS-60, Moog Sub Phatty and Little Phatty synths to create a large library of dreamwave and synthwave samples. There's more than 1.1GB of unison bass loops, analogue drums and bright synth lines inspired by artists such as Kavinsky, Mitch Murder and Chromatics. Although the patterns are fairly simple, the sounds are thick with analogue goodness. You get a huge collection of vintage-



Key Features

- Synthwave loops and hits
- 1.3GB+ of 24-bit audio
- 137 sampler patches for EXS24, Kontakt, NN-Xt, Kong, HALion and SFZ
- 80-160bpm
- Produced by Jim Smith, aka Teeel

Value

££\$
MusicTech

sounding bass, synth, drum and fx hits and there are also 18 synth and pad MIDI loops. **MT**

MT Verdict

A massive pack of simple but authentic-sounding analogue and digital loops and hits that would be a great resource for anyone writing in electro, synthwave, synth pop and other genres.

8/10

Hip Hop Shadows Vol1

Publisher **Loopmasters**

Price **£29.95**

Contact **info@loopmasters.com**

Web www.loopmasters.com

Instrumental hip hop master Chemo has teamed up with Loopmasters for a fresh collection of organic-sounding loops and hits, inspired by pioneering artists such as J Dilla and Flying Lotus. The pack features 12 construction kits of unquantised, live sampled drums; wonky bells; pianos and synths; warm, rounded live basses and more. The tracks themselves are atmospheric, beautiful and steeped in nostalgia, and everything has a loose feel with plenty of glorious little mistakes and human touches. Most of the loops are 8 or so bars long with little variations at the end, and are gently layered with sounds to add detail. You'll also find 12 sampler



Key Features

- Instrumental hip hop loops and hits
- 12 construction kits from 78 to 123bpm
- 816MB worth of 24-bit audio, Wav, Apples Loops, Live Pack, ReFill, Rex2
- 12 sampler instruments for EXS24, Kontakt, NN-Xt, HALion, Kong and SFZ
- Produced by Chemo

Choice
9/10
MusicTech

patches with instrument and drum hits taken from the pack so you can build your own beats or experiment with adding in little quirky hits to your tracks. **MT**

MT Verdict

A compact but beautifully crafted pack that's stuffed with character and a human, organic feel that would be great for adding life to hip hop or any other genre.

9/10



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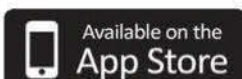
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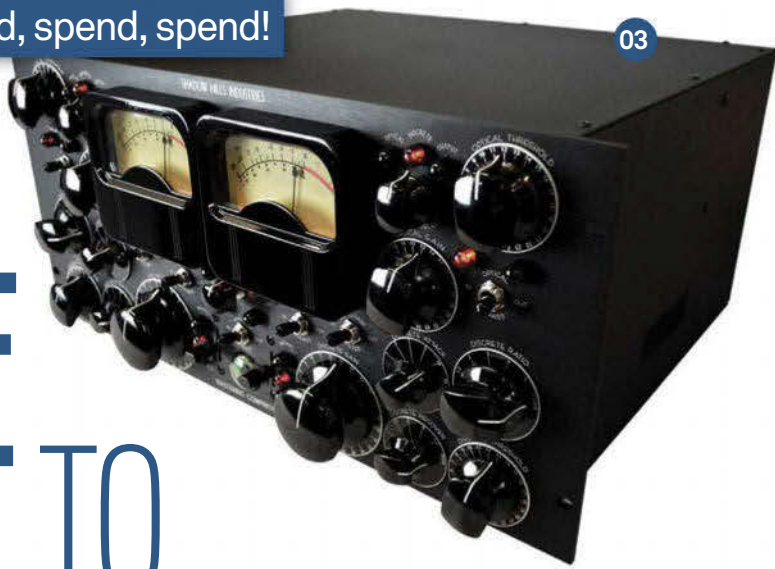
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MT Feature Spend, spend, spend!

03

6 PIECES OF EQUIPMENT TO BLOW A YEAR'S SALARY ON



What if money was no object and we could indulge our wildest gear-hoarding fantasies and buy whatever we wanted? **Rob Boffard** has the answer...

When it comes to buying gear, money isn't actually the primary consideration – or it shouldn't be, anyway. Buying studio kit is all about your needs, what it can offer you and how it can affect your mixes. Not that that stops us from jumping on kit websites and filtering by price, seeing just what the top end really looks like. What would we do, if money was absolutely no object? Which pieces of gear would we splurge on? Fortunately, we've saved you the trouble. Here are six pieces of hardware to spend a year's salary on – and by a year's salary, we mean a truly staggering

The Slam! is terrific. It offers superb dynamics, lightning-fast FET and pin-point control

amount of money (heads up: we've largely steered clear of vintage equipment here, as prices can often fluctuate – and we could spend a long, long time rounding up the best and most expensive vintage gear out there...).



01

01 Avalon AD2077 Stereo Mastering EQ

Amusingly, Avalon includes a testimonial for the AD2077 on its website from a person named "Emily L, NY", who raves about the EQ's "incredible depth and elegance", "the integrity of the stereo image" and the fact that "the high-end air seems to go on forever!" We don't know whether "Emily L" exists, but unless she's got the dollar equivalent of £10,000 in the bank, we're betting she doesn't own one of these. The AD2077 is a truly marvellous bit of kit, with fantastically-made Class A amplifiers that deliver all the sound quality you'd expect. Emily L may or may not be real, but you can definitely believe her hype.



02

02 Manley Slam!

It's worth gracing our list with this outstanding →

→ piece of outboard: a mic preamp/limiter combo. A very expensive one, built by a legendary manufacturer and guaranteed to give both your recordings and your studio a sheen that only lots and lots of money can buy. And, to be fair, the Slam! is terrific. It offers superb dynamics, lightning-fast FET, and pin-point control – and despite the fact that it can get bloody loud, bloody fast, the results are always butter-smooth (as you'd expect from something with a price tag of £5,000).

03 Shadow Hills Mastering Compressor

Compressor shopping is the dark underworld of studio kit. It's a realm filled with rumours, strange characters and mythical creations. The Shadow Hills Mastering Compressor is – and we use this term very deliberately – the holy grail. Even finding it on the Shadow Hills website takes time and effort, and... well, just look at the thing. Big, foreboding and very, very black, with a set of components that deliver truly breathtaking compression. No wonder it's sought-after. It's separated into discrete and optical sections, includes full sidechain filtering and is generally considered to impart shine to mixes just by being in the same studio. It also costs around £7,000 – assuming you can find one to buy in the first place.

04 Adam S6X Active Studio Monitor

When it comes to monitors, you want monsters. So why not put down £10,000 for the Adam S6X? It's a four-way monitor with front-mounted controls that is ridiculously, sublimely accurate, even at very high sound pressure levels. Each of the drivers has separate controls, allowing you to perform minute adjustments. These are the monitors you buy if neither space nor money are a problem, although you're not going to get by with just one. Nope, that £10K will get you only a single speaker, so crack open the savings account and buy two. It's the sensible thing to do.

05 Minimoog Voyager 10th Anniversary

Synths are another area where you could spend hundreds of thousands of pounds buying vintage equipment, but if we stick to new stuff, a few things become apparent. It has to be a Moog, and it has to be hand-made – also covered in gold, inlaid with awabi pearl from Japan and finished with transparent knobs. Because who wouldn't want a

The AMS Neve Genesys G128 by definition is an amazing console – it is a Neve, after all



piece of studio equipment that not only screams the fact that your studio is probably installed above a Scrooge McDuck-like money pool, but also sounds absolutely astonishing? We'll take three, please. At £10,000 a pop, of course. Hopefully, Moog will throw in a complementary pair of white gloves.

06 AMS Neve Genesys G128

Do you work in the City of London? Take home a six-figure bonus? Splendid! Here's the mixing console you need. The AMS Neve Genesys G128 is an amazing console by definition – it is a Neve, after all – but this is one that really pushes the needle into the red. Never mind the 64 channels of mic/line and 64 channels of DAW/tape monitoring, the real draw here is that this desk is modular, allowing you to mix and match, and even expand, your desk if for some ungodly reason you need more than 128 channels. Oh, and it comes with fader and button recall. You need never use the tape and sharpie again. Although if you let sticky tape come anywhere near your £104,000 beauty, you need your head examined. **MT**



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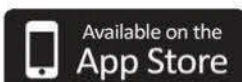
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Six of the best

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Welcome to the **MusicTech Buyer's Guide**, where we round up some of the best products recently reviewed in the magazine. This month, six of the best **interfaces** of varying price points and specs to help you plug into your studio...

BEST Entry-level

Audient iD14

There is a heck of a lot to like about the Audient iD14, despite there not being a heck of a lot to look at! The interface is one of the company's entry-level models, but features the same ASP8024 Class A microphone preamp circuit as used in Audient's consoles. Reviewer Huw Price said: "The preamps sound clean, transparent and classy. Noise levels are commendably low and we think they can hold their own with most mid-priced standalone solid state preamps. The DI is impressive, too. With electric guitar, it produced a detailed and full-frequency tone with natural playing dynamics and no sterility. The iD14 isn't lacking anything essential."

Audient has concentrated on audio quality rather than gimmicks and the result is attractive, sonically impressive and fiendishly useful." He concluded: **"A classy interface featuring all the quality you'd expect from Audient at a very affordable price."**



Details
Price **£190**
Contact **Audient**
+44 (0) 1256 381944
Web
www.audient.com

BEST All-round

Focusrite Clarett 8Pre

The Focusrite 8Pre is a great all-rounder with a spec to handle just about anything. It has 18 audio inputs and 20 outs, with eight analogue ins and 10 outs plus eight ADAT I/Os and stereo S/PDIF I/O making up the remainder. It features

Focusrite's latest Control software, a big improvement over the company's MixControl. Reviewer Andy Jones said: "Clarett does everything it sets out to do, and very well. It has great mic pres, offering superb recording and the routing software offering the ultimate

in recording flexibility. 8Pre performed admirably well, with zero latency, and it will give multi-recordists their speed." He concluded: **"Focusrite's Clarett 8Pre is better, faster and it certainly is easier. And flexible and rock-solid, too. Thunderbolts are go (sorry)."**



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BEST Hi-end

DiGiGrid DiGiGrid IOS

With Waves software and DigiCo hardware, you know this is a quality interface. The 2U unit connects to your Mac or PC via Ethernet cable, and provides eight analogue mic/line inputs and eight outputs, plus two headphone outputs – as well as AES/EBU and S/PDIF digital, Wordclock and MIDI I/O. By using Ethernet, rather than a protocol such as USB, FireWire or Thunderbolt, the DiGiGrid is able to communicate with multiple DAWs simultaneously, over large cable runs. Reviewer Mike Hillier said: "IOS is designed cleverly, to appeal both to the small home studio user and professional studio owners." He concluded: **"DiGiGrid IOS is a very exciting interface, offering a powerful DSP engine alongside an impressive I/O selection."**



→ **BEST** iOS and more!



Details
Price £279
Contact
Sonic Distribution
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Web
www.
iconnectivity.com

iConnectivity iConnectAudio4+

Connectivity doesn't really want to push the iOS side of the 4+ too much, but the unit does connect your mobile and studio worlds very well. Luckily, reviewer Mike Hillier detailed its other benefits, too. "It has a very impressive set of specs, but the most interesting thing about the 4+ is that not only can it interface your iOS device, but it can also interface with a Mac or PC simultaneously, and – most

importantly – therefore allows audio and MIDI to be sent directly between the iOS device and the Mac/PC over USB. This means that no D/A or A/D conversion is necessary for audio. It is a must-have device for any musician or engineer who wants to integrate their iPad and a great first interface to link all your studio gear. **An excellent innovation. The iConnectAudio4+ streamlines your iPad workspace.**"

“Not only will the 4+ interface with your iOS device, it can also interface with a Mac and PC simultaneously and is a must-have device”

BEST For live

Soundcraft Ui16

The Ui16 is the ugly part of a live mixing experience combined with a software front end. The thinking is that you rack the interfacing part away and control the beast from anywhere with a wi-fi connection – and it works superbly. Reviewer Andy Jones said: "The designers have really thought about who is using this mixer, and where and

how they are using it. There's no messing around, just one password and you are ready. I see it as more of a live mixer than a studio one, but on the road the possibilities are many and varied. But the best bit is to see new tech being used in such a zero-fuss and downright useful way. **A great concept superbly realised. Practical, easy, versatile and a great sound.**"



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BEST Mobile

RME Babyface Pro

The Babyface Pro is out-and-out aimed at the mobile community. It can be used with or without a computer, and iPad connectivity extends its practical use even further. Reviewer Andy Jones said: "The Babyface Pro is a fine unit. It's not the cheapest interface around, but it screams quality and you just feel you

can trust it to go pretty much anywhere with you. It's also aimed at the real world. Everything from cabling to the casing is thought through and you get the impression there are musicians and producers behind the design. **Robust, compact, easy to install, sounds great and loads of routing options. A great mobile interface!**"

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Of course we were going to open with a modular synth shot – it's the MT Modular Issue after all!

Show off your studio

Welcome to *MusicTech's Show Off Your Studio*, where we highlight the best reader studios of the month. Send us a picture of your studio via the *MusicTech Facebook* page and we'll get in touch...

Omniscient Records

Interviewee: Josh Tonnissen (Praxis, Wave Mechanix, Konjecture)

Contact: omniscientrecords@gmail.com

MT: What are the key components of your studio?

Large Eurorack modular system with 12 rows at 104hp each; Koma Elektronik Komplex Sequencer; DSI Prophet 12, DSI Tempest; Moog Voyager; Access Virus C; Roland TR-909, TR-808, TB-303, SH-101, SH-1; Sequential Circuits Pro-One; Korg Mono/Poly; Midas Venice F32.

Which DAW do you use and why?

Ableton Live. Coming from a hardware-only setup from the late nineties and into Y2K, most software applications were geared around recording guitar dude music. Because I used lots of different outboard units, my brain was wired for multiple sequencers running various blocks of sequences. When I discovered Ableton at, like, version 4 or so, I was totally blown away. Their DAW was designed almost completely around the way a hardware configuration runs. Session mode is totally brilliant, and allows for endless jamming without ever stopping the sequencer. Since

I run a large hardware-based studio, Ableton offers a lot of different ways to interface all of my gear in an efficient and well-designed manner. From external MIDI sequencers, DinSync gear, voltage-controlled analogue synths and analogue clock for the modular, Ableton never skips a beat.

What is your favourite piece of gear and why?

That would have to be my modular system. Since the rebirth of modular (Eurorack), synth designers started building their gear around the way electronic musicians work. Most of the keyboard synth companies build great gear, but the Eurorack guys really focus on innovative designs and push the boundaries of synthesis. I use the modular for everything, not just synth voicing. I will run all my various other gear through the modular for filter and effect processing. Think of it as the ultimate time-synced FX unit ever made. There are also several complete voice drum modules in the



system, making for a standalone techno tool.

How often do you use the studio on average? Not nearly enough time of course! Right now about 10-16 hours per week, but I have been in there up to 35 hours a week when work doesn't get in the way.

How do you use your studio?

My studio is set up as a dance music production lab, and while I occasionally collaborate with other artists, I generally work by myself. At the end of the day, I just make music for fun; however, I do release music professionally and do various remix projects for other artists and labels.

Does anything annoy you about your studio set-up? I have a love and hate relationship with my hardware overload. Since I have all of my inputs and outputs (including CV/gate) ran into five 48pt patchbays, every time I have a cable failure it is a nightmare to chase it down. There can also be the occasional sync issue, which drives

me absolutely crazy, but thankfully it doesn't happen too often. I must say, though, nothing is worse than when things go wrong with my custom-built PC. That's why it has never even been on the internet!

Next on your shopping list?

Probably more modular gear... but ideally a nice new set of studio monitors and acoustic treatment panels. Not sure what to get yet for monitors, but it would be ideal to have a higher-end setup to complement my production tools.

Dream piece of gear? That's a tough one. I am always lusting over various processing gear, but never pony up to buy it. I would love a Culture Vulture, and a few Distressors and valve preamps, but I will honestly probably spend the money on more modular gear...

What advice do you have on studio creation? Build a powerful desktop PC with a killer soundcard first. Then research your favorite artists and see what sort of gear they are

Get a good PC (as well as a fantastic Eurorack system)



There's a pretty good set of keyboards and classic Roland gear too...

using in their studios. Every synth had a different sweet spot, so see what your favourite artists are doing with their gear and take their results as recommendations. Buy one piece at a time and learn it front and back. Everyone says this, but it's totally true. Ditch Facebook and start reading technical documentation for your gear; you'll thank me later.

Any other studio-based anecdotes?

While anyone can learn the technical side of studio production, the real magic is in the moments of uninhibited inspiration, those moments in between the tech that all of your ideas hatch from. While you cannot always summon the essence of inspiration, you should always be ready for when it comes on. When I do break through the concealed barrier into full flow, I find my ideas coming at me like a kaleidoscope of butterflies, and I am poised with a net attempting to catch as many as I can. It's important to do the mundane technical studio work (running cables, testing connections, etc) when you have no flow, so that when the butterflies are upon you, you are ready to bathe in their radiance.



→ Jamal/TTF Studios

Web: meetandjam.com/studios



Big studio, small answers

What are the key components in your studio? Allan and Heath GSRM 24 desk; Focal Twin B monitors and loads of guitars and mics.

Which DAW do you use and why? Logic, because I'm so used to it and it's bloody amazing.

What is your favourite gear? Simply my laptop because I would be just completely lost without it, as I do all of my mixing/processing in the box.

How often do you use the studio on average? Almost every day and a minimum of five days a week.

How do you use your studio? For recording bands, solo work or just for fun? All three!
What is next on your shopping list?

Probably an analogue synth or something like the Alesis Andromeda, as I sold off all of my old synths a few years back and now I regret it and want them all back!

Is there anything that really annoys you about your set up? Nope, not really – everything runs pretty good.

What is your absolute dream piece of studio gear? A Fairchild, because I have always wanted one. So rare and a hefty price tag!

What advice do you have for anyone starting out in the world of studio creation? I'd say: price up everything fully before, and expect things to run over budget.

Do you have any other studio anecdotes or stories? Erm, none that you would be able to print!

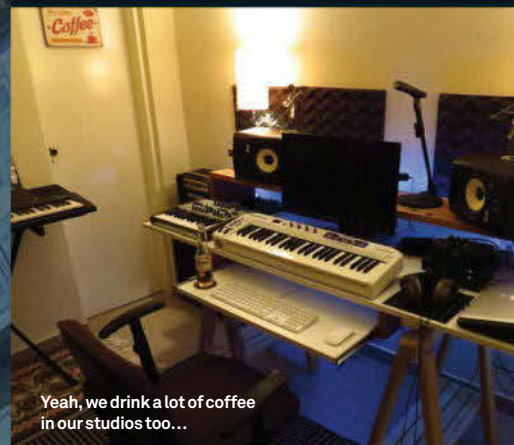
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Gabriel Moreas



Yeah, we drink a lot of coffee in our studios too...

What are the key components in your studio? Apple Macbook Pro; Arturia Minibrute S; Focusrite Saffire Pro 14; Boss Roland Space Echo RE-20, tremolo pedal, Metal Zone pedal; Shure SM57; Epiphone Les Paul Custom Black; Rockit KRK 6; Sennheiser hd 518; Meteoro Atomic Drive 20 amp; Waldman Krypton Keyboard MIDI Controller.

Which DAW do you mainly use? I use Ableton Live.

Favourite gear? Arturia Minibrute.

How often do you use your studio? 8/9 hours/day, so 45 hours a week.

What do you use your studio for? I produce electronic music, and I DJ at the weekend. I'm currently graduating in music production and I'm planning to start producing bands, too. I use my SM57 to record some vocals and percussion.

What's next on your buy list? I want to update my studio monitors with Focal speakers to improve my mixing and mastering perception.

Anything annoy you about your setup? The only thing that annoys me a bit is the lack of acoustic treatment on my room.

Dream gear? A Moog Sub37. I love it so much.

Do you have any advice? To have it as functional as possible, don't try to innovate so much and try to get the best acoustics, like you can get from your room. **MT**

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We're going all modular this month with an exclusive pack of modular-style loops from sound designer Richard James. The collection is divided into three folders of effects, percussion and synth loops with a range of weird and wonderful bleeps, blips and complex, modulating patterns. All loops are at 128bpm, and were created using u-he's Bazille synth, with some additional help from Ableton's arpeggiator and a touch of delay, reverb, spring reverb and some side chaining.

SAMPLE LOOPS//ROYALTY-FREE & EXCLUSIVE

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This month's pack from Equinox Sounds features 60 evocative, electronic percussion loops to help quickly compose cinematic rhythmic beds, and is perfect for composers and sound designers working on film and media productions. Each percussion loop in this collection has been created using subtractive synthesis, FM, wavetable, additive and many other types of sound generation and mangling techniques. All files are provided with bpm information, with tempos ranging from 77 to 140bpm.

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//ADVANCED EXS24 TIP, SWING & SYNTH PROGRAMMING

➔ **Size 498MB Format MP4 Web** www.cr2records.com
Sample Tools by Cr2 has provided four videos of top tips to help with your productions. For Logic users, there's advanced EXS24 programming that shows how to change samples on the fly using the pitch bend wheel, and how to create swing with chopped audio in the arrange window. There's also a look at using Xfer's Cthulhu plug-in to generate chord progressions in Live, and how to program a dirty Melbourne bounce-style lead sound using Reveal Sound's Spire.

//SOFTWARE

IZOTOPE OZONE 7 (WINDOWS, MAC OSX) ➔

An update of iZotope's flagship all-in-one mastering software, which includes a host of new features including a new IRC Maximizer algorithm and all-new Vintage EQ, Vintage Dynamics, Vintage Limiter and Vintage Tape modules. www.izotope.com



DEMO//SOFTWARE



➔ **D16 DEVASTOR 2 (WINDOWS, MAC OSX)**

The second generation of D16's versatile multiband distortion unit for creating subtle warmth and heavy driven sounds, with a Dynamics-flattener module, Diode-clipper distortion, 3 multi-mode filters and an optional limiter. www.d16.pl

DEMO//SOFTWARE



TB PRO AUDIO STILT (WINDOWS, MAC OSX) ➔

sTilt is a linear phase filter that tilts the audio spectrum around a given centre frequency. Features include an adjustable slope from -6dB/Oct to +6dB/Oct, adjustable centre frequency, five quality modes, autogain and more.

www.tb-software.com

DEMO//SOFTWARE

➔ **BEAT SKILLZ BOUNCE (WINDOWS, MAC OSX)**

A transparent yet versatile compressor for subtle and more extreme sounds on instruments and mixes, which features a Detection Section where a selected frequency band can be fed back in to the compressor. www.beatskillz.com



FULL//SOFTWARE



FULL//SOFTWARE

➔ **AUDIO DAMAGE FUZZPLUS3 (WINDOWS, MAC OSX)**

An accurate model of a vintage distortion pedal with a resonant low-pass filter modeled on the MS20 analogue synthesiser, with a self-feedback control to feed the output back into the input. www.audiodamage.com

SAMPLE LOOPS//ROYALTY-FREE

//JUNGLE, SYNTH WAVE & HIP HOP



Size 288MB Format 24-bit/44.1kHz WAV
Web www.loopmasters.com

This month's cutting-edge samples from Loopmasters include wonky beats and organic sounds taken from Hip Hop Shadows Vol 1, and dreamy analogue synths from Retro Wave. There's also dubbed-out skank chords from Dub Invaders and heavyweight dnb beats from Dope Ammo & Run Tings Cru Drum & Bass Fusion Vol 13. Finally, for the house heads, we've got jackin' drums and tubby basses from Reza House Nation 2 and Real House Music 2. Use the code MUSICTECH10 for an exclusive discount at Loopmasters.com.

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SOFTWARE TWO FREE PLUG-INS	WORKSHOPS //ABLETON LIVE //LOGIC //PRO TOOLS MASTERING	
	SAMPLE TOOLS BY	

VIDEO TUTORIALS//68 MINS

//FLUX PAVILION MASTERCLASS, KORG MINILOGUE OVERVIEW

Size 769MB Format MP4 Web www.pointblanklondon.com
Point Blank Music School joins producer Flux Pavilion in his studio as he discusses his track *Emotional*, with tips on Cubase, compression, vocal chopping and master buss processing. There's also a video with tutor Paul Ressel, who takes an in-depth look at the oscillators, filters and other features on the new Korg Minilogue polysynth. Finally, we have a quick tip showing how to use Follow Actions to automatically remix clips in Ableton Live.

VIDEO FEATURE//36 MINS

//DYNAMICS IN MASTERING

Size 390MB Format MOV Web www.loopmasters.com
Loop+ provides a bundle of studio know-how videos, including a new Flash Focus Plugin Spotlight series focusing on the best EQ plugins. Producer Multiplier looks at the randomise functions in the Glitchmachines Cataract sampler, runs through the improvements to Sample Magic's AB reference plugin and explores the new Deep Dub Tech expansion pack for the Carbon Electra synth. Finally, producer Adam Goodlet explains dynamics in the mastering process, with an extract from his new DIY Mastering course out on Producertech.



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K72 K92

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